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American Aviation

The Independent Voice of American Aeronautics

JULY 15, 1943

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Plenty of Planes

Fortnightly Review

PRODUCTION of transport airplanes has zoomed upwards to such an extent that there can now be no sound reasons for further delaying the allocation of additional equipment to the nation's air carriers. If only half of the planes requisitioned by the Army last year were returned, the major air mail and express bottlenecks would be eliminated.

Transport plane production in 1943 is one of the modern industrial miracles. The June output figures cannot be disclosed for obvious reasons, but old-timers in the air transport industry who saw the total airline equipment build up to 350 odd airplanes before the war would be startled. The June output alone puts the entire pre-war industry figures far into the background.

Why, then is there such a deliberate attempt to clamp down the commercial air transport industry? Pullman cars, freight cars and passenger coaches are being built for the railroads. All media of transportation is creaking and groaning under abnormal strains. Why has the air transport industry been singled out for special "protective" treatment during the war?

Last issue in this space we pointed out that transport airplanes are being wasted, that they are often used as private aerial limousines, and that they are not being utilized to the extent that all *units of transportation* should be used in these pressing times. There has been no secret industry-wide about the utilization of this equipment, save for most of the operations of the Air Transport which are on some sort of airline basis.

We can quite understand the ambitions of the Army in building up an

(Turn to page 8)

As the past fortnight brought numerous developments revealing plans of ground transportation concerns for entry into the air transport field after the war, one of the strongest protests against these proposals was raised by E. Lee Talman, executive vice president of TWA, who said the airlines will fight encroachment (Page 18)

Late Bulletins

Fare Reduction

Major airlines announce a reduction of air express rates averaging 16 per cent, and of passenger fares averaging 10 percent, effective July 15, as a result of the pressure exerted several months ago by the Civil Aeronautics Board.

Surplus Plants Bill

Just before the Congressional recess, Rep. Carter Manasco (D. Ala.) introduced a bill to set up a surplus lands and war plant board to handle disposition of surplus government property at the end of the war. The board would include high-ranking government and industry officials.

Trend of the News

Production Up Slightly: Despite earlier predictions to the contrary, June aircraft production very slightly upped the high May total. Reasons were various — lack of engines at a few plants, shortage of labor at one, and shortage of government - furnished equipment at several others. July should zoom to a new high total, however, and the drop in June was nothing that the Axis could be pleased about because the total exceeds even the wildest dreams of the industry of five years ago. Significant was the percentage of transport planes produced in June. The only transport shortage is in the air transport industry!

Oppose DC-3 Increase: Strong opposition from the Air Line Pilots Association, reflected by hundreds of telegrams and letters from ALPA members, have more or less killed for the time being the proposal of the Civil Aeronautics Board to increase the gross weight limitations of the Douglas DC-3 transport from 25,200 lbs. to 26,200 lbs. Manufacturers and air transport operators were hoping to get the limitation raised because far more air mail and express could be carried. But the pilots apparently have scuttled the plan. Somewhat ironically, DC-3's are carrying up to 30,000 gross weight in Army and other operations apart from domestic air carrier flights, and for years before the war KLM, Royal Dutch Airline, had the gross weight posted as 26,000 lbs. The CAB proposal, handled through its air safety bureau, would have meant a thousand pound increase at sea level with corrections for altitude. A similar proposal for Lockheeds in commercial use is apparently also dead.

Do Testing Now: It is being suggested in qualified circles that the cargo and transport planes now being manufactured for the Army and the Navy should be put through flight tests for Approved Type Certificates so that they can be used immediately after the war for commercial purposes. As it stands now, no Army or Navy plane can be used commercially since it has not gone through the CAA tests, and if they have to be altered in any way to meet CAA requirements the manufacturers have nothing on which to base their plans. Usually about 25 to 30 hours of flying, over a period of two or three

(Turn to page 6)

20c

DIAGNOSTICIANS OF DESIGN

...are working together to make good planes better

One of the most significant aspects of the contributions of the aircraft industry to our country's war effort, has been the exchange and utilization of specialized abilities on a cooperative, intra-industry basis.

At McDonnell, we have been privileged to work with the Army and Navy, and with a number of aircraft manufacturers on assignments involving specialized research.

Detailed information concerning the results achieved by our engineers, is of military necessity, restricted. We can, however, mention a few among many projects brought to successful completion.

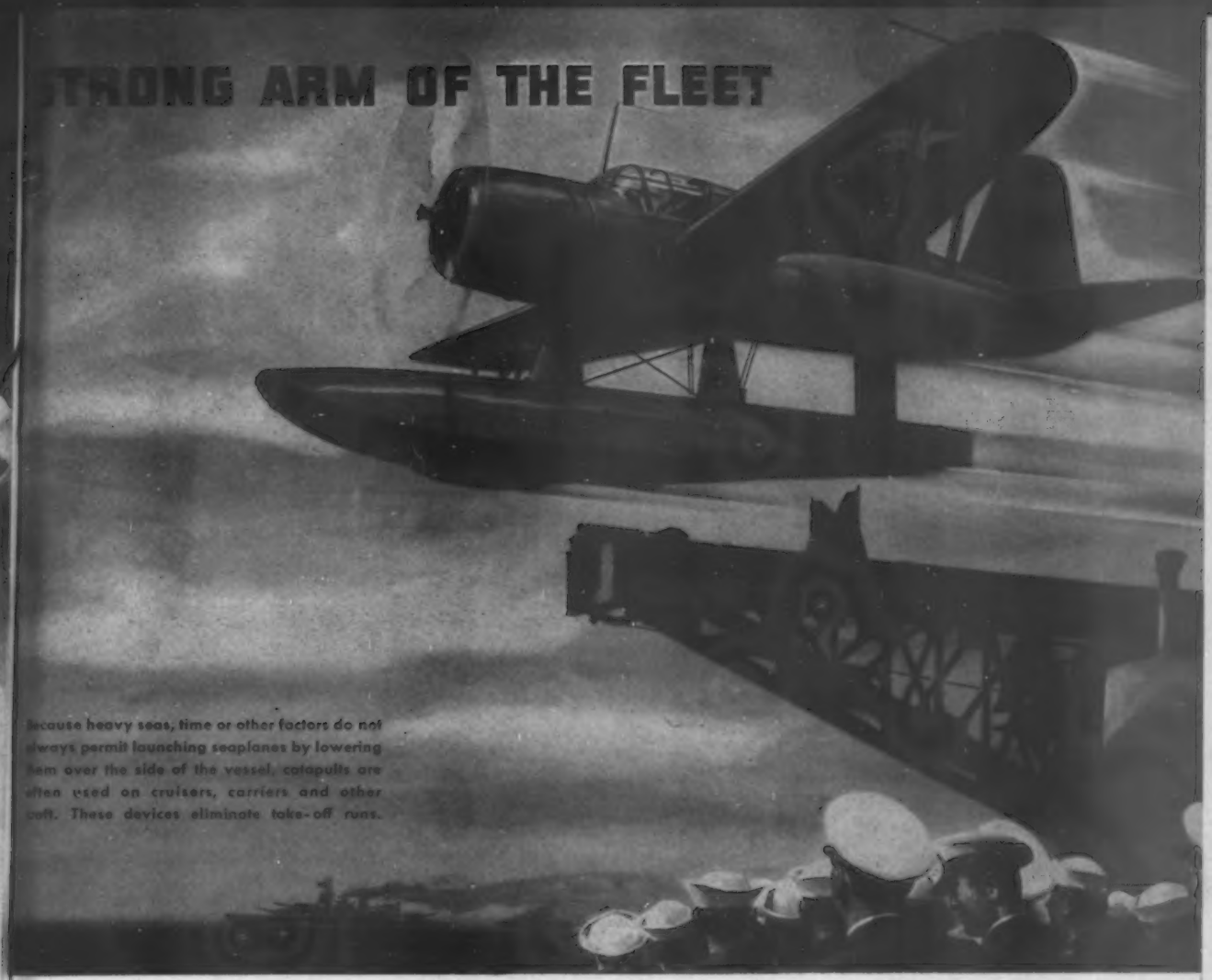
Among these were: an *aerodynamic research* assignment on a well-known combat plane which has seen action in many engagements; a *flutter research* assignment on a giant plane being built by one of America's largest aircraft manufacturers; the *development* of strong, lightweight *plastic ammunition boxes;* and the *redesigning* of *gun turret parts* to permit the use of weight-saving plastic.

We are prepared to carry out further research assignments—with particular reference to *flutter research,* and the *development* and *use* of *plastics* in many phases of aircraft design and manufacture. We shall welcome inquiries.

McDONNELL *Aircraft Corporation*

Manufacturers of PLANES · PARTS · PLASTICS ★ SAINT LOUIS - MEMPHIS ★

STRONG ARM OF THE FLEET



Because heavy seas, time or other factors do not always permit launching seaplanes by lowering them over the side of the vessel, catapults are often used on cruisers, carriers and other craft. These devices eliminate take-off runs.

TO THROW an airplane into the air takes a mighty strong arm. Launching these eyes of the fleet from a cruiser deck is the job of the catapult.

Gears on the catapult must be rugged to stand the punishing shock that comes when the speed of the airplane weighing more than two tons is increased from 0 to 70 miles per hour in a distance of 60 feet!

The gears in the engines powering these planes must be tough, too. For though light in weight, their job is to transmit the power of 2000 horses to whirling propeller blades.

Making these gears—the rugged ones for the launching devices and the marvels of high precision for the airplane engines—is Foote Bros.' job, and Foote Bros. are proud of the service that the gears they make are rendering—proud of the manufacturing know-hows, the advancements in techniques that have been developed to produce these gears in the tremendous quantities needed for an America at war.

But more important to American Industry is what these manufacturing know-hows will mean to peacetime production. For experience gained today in producing gears that are tougher—gears that possess a higher degree of precision—gears that demand the latest manufacturing technique will assure more economical power transmission—more efficient machines for American Industry when the war is won.

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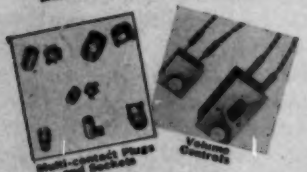
Kellogg microphones serve our fighters not only in planes but also in tanks, combat vehicles of every type, at airports and ground stations. Into their manufacture goes the same specialized engineering skills—the same precision methods of manufacture—that have made Kellogg an honored name in the whole field of communications for almost half a century!

A Few Examples of Kellogg Products in Military Use



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Hand, throat and palm microphones; telephone and radio earphones; volume control and switch boxes; multi-contact plugs and sockets; capacitors and other components for radio, telephone and telegraph equipment.

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Finer Communication Equipment FOR WAR AND PEACE

American Aviation

Vol. 7, No. 4 July 15, 1943

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Trail Blazing in the Skies

1931

REFINEMENTS IN THE TECHNIQUE OF SPOTWELDING STRUCTURAL ALUMINUM ALLOYS were patented by Goodyear Aircraft Corporation in 1931, and used in the construction of the airships Akron and Macon – the largest aircraft structures ever built of aluminum alloy in this country. The economy, speed and durability of this process have since led to its widespread use throughout the aircraft industry.

1943

NOW COMES CYCLEWELDING – a new, faster method of assembling aircraft structures, developed jointly by Goodyear and Chrysler Corporation. Cyclewelding creates a *continuous* bond between light aircraft metals – aluminum alloys, magnesium and alloy steels – through use of a synthetic adhesive which produces cemented joints of greater strength than riveting or spotwelding, resulting in increased structural efficiency. Cyclewelded seams can be made liquidtight and airtight, permitting improved assembly of pressurized units, containers and hulls. It gives smoothly faired outer-skin surfaces – improves laminar flow – lessens air frictional drag, so important in new, low-drag type wings.

How Goodyear Aircraft Corporation Serves The Aircraft Industry

1. *By constructing subassemblies to manufacturers' specifications.*
2. *By designing parts for all types of airplanes.*
3. *By re-engineering parts for mass production.*
4. *By extending our research facilities to aid the solution of any design or engineering problem.*
5. *By building complete airplanes and airships.*

GOODYEAR AIRCRAFT

Republic P-47 Thunderbolts Equipped With Wittek Aviation Hose Clamps

For Dependable Hose Connections

On the offensive—with new weapons for allied victory—P-47 Thunderbolts! These fast firing heavily armored high altitude fighters are equipped with Wittek Aviation Hose Clamps. Today, as in the past, Wittek Aviation Hose Clamps, known as the standard of the industry, are being used by the nation's leading military aircraft and engine builders. Wittek Manufacturing Co., 4305-15 West 24th Place, Chicago.

ARMY E NAVY

WITTEK Aviation HOSE CLAMPS

(Continued from Page 1)

weeks, is needed for ATC tests and it would be time well spent for manufacturers and airlines alike to get the testing done now so no time will be lost when the war ends in making these surplus Army and Navy airplanes available for civil use.

Gliding Over Oceans: Advocates of gliders as cargo carriers point to the recent successful test of a British freight-loaded "sky-train" over the Atlantic as opening great possibilities in air transport. A glider, loaded with vaccines, radio, aircraft, and motor parts, was towed by a twin-engined Douglas C-47 transport 3,500 miles in 28 hours. The flight was preceded by many months of experimental hops with the fully-loaded glider. Experiments with longer and heavier "trains" are forecast.

International Law: It has just been disclosed that Quincy Wright, professor of international law at the University of Chicago on leave as a consultant to the Lend-Lease Administration in Washington since April 1, is now a member of the working or sub-committee of the Interdepartmental Committee on Postwar Aviation Policy. This group is drawing up the actual draft or blueprint of postwar international aviation policy on the part of the government. Dr. Wright's selection indicates careful attention is being given to the legal aspects of international aviation.

Publicity: CAB can be expected to give some publicity to answers filed in response to its questions on postwar international aviation policy. However, some answers (and some of the best, from a news standpoint) will not be made public.

Cargo Explorations: Exhaustive studies are underway along several lines to find out just what types of cargo can be profitably carried by air in connection with the normal channels of trade. Indications are that shipment of food by air will obtain a strong toehold in the national economy in the transition period after the war, when surplus aircraft may be impressed into a shuttle service to devastated foreign countries. Scientific packaging to save vast quantities of weight is being developed. Loading techniques are improving. The government is taking an active part in food-transport studies and independent organizations are delving into revealing studies of actual costs in connection with commodity shipments.

Agreement: The steady progress being made in handling of aircraft material allocations demonstrates that government agencies and manufacturers are at least in agreement on major steps which must be taken to eliminate material bottlenecks which impose the only appreciable limit on production potentialities of the industry. In this connection, drastic reduction of the number of "B" products used in the industry is proposed in a severe change in CMP procedures now under consideration. Developments can be expected soon.

Inland Ports: The airplane's most revolutionary contribution to history may be reversing of the historical trend of civilizations and nations in growing up about their seaports. Cleveland, for instance, envisages the day when it will be the actual "port of entry" in the U. S. for British transport planes. Western and midwestern cities may become the termini for "over the top" air routes from the Orient. Certainly the inland cities, alert to the possibilities, will benefit immeasureably from air transport development.

Spreading Out: Publicity continues to focus attention upon the helicopter out of proportion to what the accomplishments actually justify. However, several developments are noteworthy including the farming out of contracts to other firms for production of the Sikorsky craft, and sub-contracting with such firms as Norge for parts. The more contracts put into operation, the more experience will be accumulated in this field for postwar utilization.

Help for WTS: Washington officials indicate a move may soon be made to help operators of WTS schools who are having a difficult time building up and maintaining adequate repair stations at their fields. Present civil air regulations demand an approved repair station at each school but shortages of materials and skilled mechanics have made it virtually impossible for operators to expand their shops along with their schools. Some sort of pooling of existing facilities may be worked out and a more equitable distribution of scarce repair parts.

Triumph IN TUNISIA!

CURTISS P-40 Warhawks dealt their full share of knockout blows in the crushing defeat of the Axis in Africa.

In helping to rid the skies of enemy fighters, in demolishing air-borne reenforcements, in crippling the movement of mechanized enemy forces, they added another chapter to a record which began with the earliest days of the war.

CURTISS-WRIGHT
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Member: Aircraft War Production Council, East Coast, Inc.

CURTISS WARHAWKS

WHILE YOU READ THIS MAGAZINE—

we'll build ANOTHER AIRACOBRA

Remember the long, hard, bitter months when U. S. Airpower consisted more of plans than of planes?

We asked you to believe that from our aircraft industry would come planes in thousands and tens of thousands. We think you deserve some good news now.

How's this: *In the time it takes you to read this magazine we'll put another Airacobra into the sky.*

Another front line fighter plane. Another "cannon on wings." Another concentrated dose of very bad medicine for the Axis.

You'll understand why we can't tell you how many hundreds of Airacobras we'll build this month, how many thousands we'll build this year.

When you lay down this magazine, just think it over a moment. Another deadly weapon in the sky—then another and another. Morning, afternoon, night. Seven days a week.

Summer, autumn, winter, spring.

Think it over, and join us in a humble word of thanks for the skilled and willing hands of American workers.

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Airacobras for victory—

FUTURE PLANES FOR PEACE

BELL *Aircraft*

PACEMAKER OF AVIATION PROGRESS

Buy War Bonds and Stamps

Another Fortress Is Hatched

A mammoth door is raised. Without fanfare, another Boeing Fortress is rolled out—ready to fly!

Looming huge and mysterious in the half-twilight, the Fortress beneath its trim, classic lines sheathes interior structures and installations that are both durable and complex.

Despite the many difficulties entailed in building so complicated a weapon, Boeing is able to hatch out Flying Fortresses* in constantly accelerating volume, because it has reduced even the most involved procedures to simple, accurate operations which can be learned quickly. This means manufacturing planning of the highest order.

Each part, each function, each assembly (and they total thousands) had to be arranged and tooled. Boeing, for example, developed more than 100,000 *special* tools to do the job.

One result is that Boeing's output is the greatest of any aircraft manufacturer —per man, per machine, per unit of floor space. Today, Boeing is building Flying Fortresses at a rate *eight times greater* than the month before Pearl Harbor.

Further, the results of Boeing's planning are, in turn, helping other companies to speed up America's aircraft production. For, under the BDV agreement, Boeing has made its plans and specifications available to both Douglas and Vega which also build Boeing Flying Fortresses.

• • •

Boeing products have always exceeded the claims advanced for them. True today, it will be equally true of any product tomorrow . . . if it's "Built by Boeing" it's bound to be good.

DESIGNERS OF THE FLYING FORTRESS • THE STRATOLINER • PAN AMERICAN CLIPPERS **BOEING**

*THE TERMS "FLYING FORTRESS" AND "STRATOLINER" ARE REGISTERED BOEING TRADE-MARKS

Editorial

(Continued from Page 1)

enormous air transport service. Such ambitions are to be expected in the midst of a global war. But we cannot see any sound basis for the "protective" custody and the restrictions placed by the Army on a national transportation medium. Such control in World War I had its unfortunate results in the case of the railroads. Such control today in the case of the airlines is not a healthy aspect of governmental and military activities.

The air transport industry is the only war industry today not receiving credit for the job being performed. Censorship restrictions placed by the Army upon the airlines are so rigid as to make one wonder what the secrecy is all about. The airlines themselves have been pushed around and bundled up so much since the air mail cancellations of 1934 that they have been more or less resigned to take it on the chin again.

The people of the United States built up the greatest air transport system in the world. It has expedited commerce and it has served the public well. It is a *transportation* system, not a mere auxiliary of the Army to be fondled and played with at the whims of a few individuals.

If there were no transport planes available, then the airlines would have to await their turn. But such is not the case. There are plenty of planes available. Some day there will be a searching inquiry into the whole air transport situation. Some day some one will have to be able to prove that every transport airplane was needed for military purposes, and it will be pretty tough going. As tough as it will be for some one to explain why a Lockheed Lodestar taken from an airline over a year ago flew exactly 90 hours during the whole year and sat the remainder of the time in a hangar—just to mention one single example.

Just who is it that is determined to keep the air transport industry "in line" for the duration. Just who is back of the threats that the airlines had better keep quiet or more planes will be requisitioned? It should make a good story.

All Chairs Free

JUDGING from the multitude of applications for new routes being filed with the Civil Aeronautics Board by steamship, railroad, bus and truck companies, plus other assorted interests large and small, the air transport field is becoming just a nice big old-fashioned camp meeting. Well, the seats are all free and everybody should be made to feel most welcome and at home. It costs nothing to file applications outside of a few legal fees.

A feature of any good camp meeting should be some good rousing hymns with plenty of stomping, and some one evidently has the idea that the helicopter makes a good theme song. Of course almost all of those companies which have filed for helicopter routes have yet to see the helicopter except in the picture magazines, but this minor detail hasn't stopped the stampede for filing.

It was noteworthy in the Greyhound Corp. applications that this vast bus concern believes that it will not directly compete with the existing air transport industry. But a glance at the map of its proposed routes is somewhat breathtaking in that it looks like a highway map of the United States and to say that Greyhound would not be competing with the existing airlines is nothing short of nonsense.

If the bus and trucking interests believe they can step easily into the air transport industry which has struggled uphill against tremendous odds and a lot of Washington bloodshed, they have another think coming. The Department of Justice is wisely entering the CAB proceedings, and at least two Senators, Messrs. Bennett Champ Clark and Burton K. Wheeler, have served notice that they will oppose the entrance of surface carriers into the air transport field. If we are to have transportation competition in the United States, we can't have one type of carrier barging into another field.

It is quite obvious that the existing industry which has pioneered the field should have first call on expansion. It is perfectly capable of serving adequately the people of the United States with air service.

The Curtain Puzzle

SIX weeks ago there was to be a relaxation of the order pulling the curtains on all commercial transport planes on taking off and arriving at airports. Somehow this relaxing order has become as mysterious as the original order that curtains must be drawn.

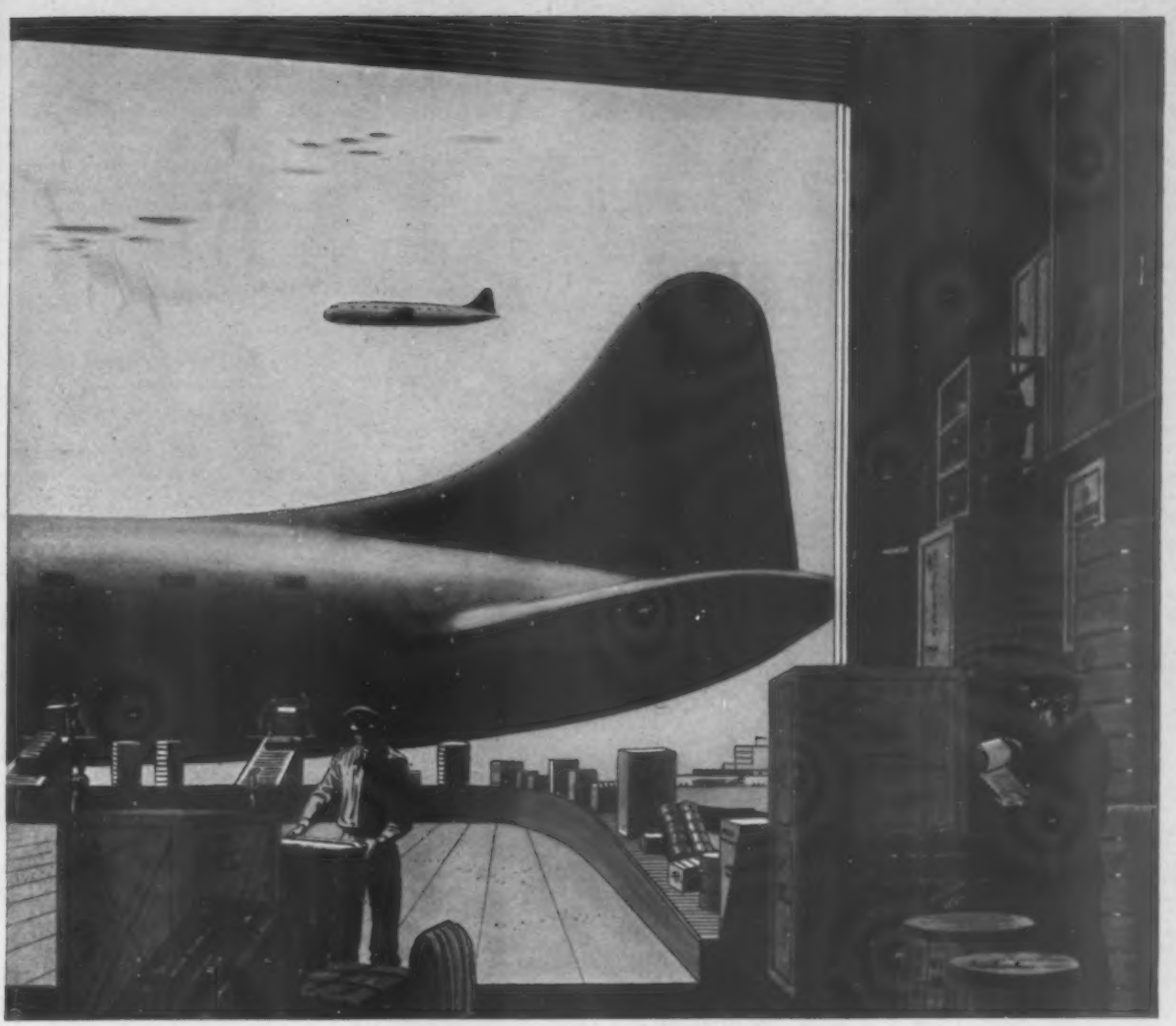
Certainly it is time for the silly curtain order to be eliminated. There is reason to believe no one in the War Department ever proposed such a ruling in the first place, at least no evidence of such an order has appeared after much questioning by the airline operators. It is all the more absurd that such an "order" should be continued.

There is no curtain closing in Canada and there is no war activity at the bulk of airports in the United States. An airplane passenger can't see anything from an airplane that he could not see from the ground or from a sightseeing plane if he chooses to do so. The "order" has been enforced with wide variations among the airlines and it has only whetted the curiosity of passengers who otherwise would pay little attention to what was on the ground. Just what is behind it all? It is time for some definitive action.

Next?

Some of the contractors for Army primary flight training see portentous signs that the Army is gradually "moving in" to take over the primary training field which has been handled exclusively by contract schools since before the war. Recently the Army took over fueling of all training planes, a move which inevitably increases the total cost of fuel and servicing to the taxpayers. And there are indications that the Army is planning to take over housing and messing of cadets. What is back of the move is a mystery. It is another encroachment by the military on private enterprise which has done an exceptionally good job.

WAYNE W. PARRISH.



Trade Ships in the *Age of Flight*

Regular scheduled passenger, mail and express Mainliners flying over the Main Line Airway carry out only one of United's wartime jobs. Other United planes are flying routes in this country and to nations beyond on strictly military missions. They are helping to pave the way for a new era of vastly expanded aviation—the Age of Flight.

• • •

Precious cargoes borne by clipper ships of old will seem insignificant compared with those of the Age of Flight. For many trade ships of the future will be giant airplanes which know no geographical barriers. They will ply routes, not only all over the world, but between principal cities in this country as well.

Fast and flexible, one of the airplane's thousandfold jobs will be to carry the world's most priceless materials and merchandise . . . things so valuable or so urgently needed that they will go by air.

Along with many regular kinds of cargo, vital shipments of precious metals will fly. Expensive perishables which cannot endure long, slow voyages will be sent by plane. The needs of emergencies and disasters will be met with airplane shipments of medicines, serums, food and replacement machinery and equipment.

Although the airplane may not be regularly used to carry heavy freight, it will serve like the ships of old, to open up distant rims of the world where rare luxuries are found. The airplane can fly direct to places reached in the past by only a handful of explorers. And along with its pioneering will come profitable routes for all forms of transportation.

Just as we now hinge so many of our hopes for Victory on the airplane, so can we look to it for new and fuller blessings of life in the Age of Flight.

★ *Buy War Bonds and Stamps for Victory* ★

UNITED AIR LINES

THE MAIN LINE AIRWAY

Books

THE AIRCRAFT YEAR BOOK FOR 1943. *Edited by Howard Mingos, published by the Aeronautical Chamber of Commerce. 728 pp. Illustrated. Lanciar Publishers, New York. $5.00.*

Howard Mingos has brought out the 25th annual edition of this standard work and as usual it is a complete story of U. S. aviation for the year and well illustrated throughout. There are 205 halftone illustrations and 39 warplane design drawings.

Summarizing the development of American airpower during the past year, Mingos feels it is time to begin being optimistic, but warns that we have a long way to go and need much more aviation to do the final job. He pays tribute to the aircraft manufacturing industry for its almost incredible expansion, and gives as many statistics as one can expect during war time. Thicker than its predecessors, the year book is a worthy addition to all aeronautical libraries.

THE COMMAND OF THE AIR, by Giulio Douhet. 400 pp. Coward-McCann, Inc., New York. $4.00.

It was a smart idea for the publisher to bring out the Dino Ferrari translation of this great and important work on airpower. Douhet wrote his original book in 1921, and published a revised edition in 1927. Controversial as are many of his theses, one cannot deny that Douhet was one of the first to appreciate the full potentialities of the airplane in war. It is a "must" book for all airmen.

As far back as 1909 the Italian, Douhet, saw that the airplane would re-make war strategy and he advocated then the formation of a separate branch of the fighting family. Like Billy Mitchell, Douhet's voice was a cry in the wilderness for the ground officers could not see the real coming force of the aerial weapon. It is amazing how accurate and true are many of Douhet's statements today. Not a word needs to be changed in many of them. If he under-estimated here, or over-estimated there, the adjustments are necessary only because he could not foresee all of the multitude of technical developments that were to come in the 1930's. Ironically enough, it was Italy, and Germany who did not accept with true impact the full force of Douhet's words, for if they had the current war might have a different ending.

And would that the U. S. could have understood what Douhet was talking about, too! Naturally there are those who differ with Douhet on many points, but his book is one which still can stand careful study and which belongs in every aeronautical library.

THE AERONAUTICAL INDEX FOR 1939. Compiled by the Division of Aeronautics, Library of Congress, Washington, D. C.

This is a continuation of the WPA project sponsored by the Institute of the Aeronautical Sciences, and has been published through funds supplied by the Sherman Fairchild Publication Fund of the Institute. The present volume was prepared from the card index maintained by the division of aeronautics of the Library of Congress, which currently covers all aeronautical periodicals and serials, American and foreign, received by the library, and also aeronautical articles appearing in other publications. An author index is included. The present volume is available for limited distribution to libraries, institutions and other interested parties. It is a complete and useful publication.

WAR PLANES OF ALL NATIONS. By William Winter. 418 pp. Profusely illustrated. Thomas Y. Crowell Co., New York. $3.00.

Bill Winter is editor of *Air Trails* and there is every good reason why he should want to bring out an up-to-the-minute book on war planes of all nations. With 116 photographs and 104 diagrams, and readable text, one can say that he has done a creditable job. There have been lots of books of airplanes within the past three years. This one ranks at the top.

Keeping shy of technical performance verbiage which confounds the layman, Winter has enlivened his text with colorful expressions and descriptions. He covers nearly 300 types of airplanes, Allied and Axis, with three-view drawings of most of them. Obviously he has been handicapped in many instances by the lack of official data, or has had to abbreviate in certain cases because of security reasons. It's a good job throughout.

FLYING FORTRESS by Thomas Collison; Charles Scribner's Sons, New York; 168 pages; Illustrated.

A little group of "believing men with an idea who had fought through the lean and hungry years" when the fate of the entire Boeing organization was in doubt, gave Grandfather and his illustrious family a name. "It's as big as a fortress," someone remarked.

"Sure it is," another man replied. "It can fight like a fortress. You might say it's a flying fortress." That, writes Thomas Collison is the origin of the name for this great Boeing bomber—the Flying Fortress, as he traces its history from the days when it completely filled the room in which it was built until the day when a multiline production plan was evolved to assemble the planes at a great saving of time and money, both for Boeing and the United States Government.

Mr. Collison mingles historical significance in with the subject matter of each chapter and in telling of the job the Flying Fortresses are doing in this war he has compiled a chronological list of partial Fortress achievements in the South Pacific, Europe, and the Middle East. Summing it up by saying—"The Flying Fortress is doing the job: it has sunk more ships and made more raids than any other plane. The Fortress has the highest average of completed missions of any bomber."

He does not overlook the importance of the Air age to come, and in the final chapter contributes his ideas to the many others now being expounded along these lines.

—E. C.

Letters

New York, New York
June 29, 1943

To the Editor:

I have just read the June 28th issue of the *New York Times*. It carries a story entitled, "Says Sky Riders Use Army Planes."

I congratulate you upon having the courage and sincerity to bring out into the open a situation which should have been exposed long ago. Any help we can give you is yours for the asking.

I have only been interested in this aviation industry for a short time, but during that period, have received all the publications that are published on aviation, and I have been wanting to tell you for a long time, that I consider the *American Aviation* magazine, the most interesting, and best edited that I have read.

Your issue is very well balanced and extremely interesting, and again I congratulate you.

Sincerely yours,
JOHN F. BUDD
Publisher
AIR TRANSPORTATION

New York, N. Y.,
June 15, 1943.

To the Editor:

I cannot resist writing you in appreciation of the editorial in the June 15 issue of *American Aviation* entitled "Transport or Policy". It seems to me about time that someone pointed out the commonsense fact that, in spite of all the large talk that one hears, international air transportation is primarily a business, intended for the transportation of passengers, property and mail from one country to another.

HENRY J. FRIENDLY.

Obituaries

Dr. Joseph S. Ames

Dr. Joseph S. Ames, 78, chairman of the executive committee of the National Advisory Committee for Aeronautics from 1919 to 1936, and chairman of the main committee from 1927 to 1939, died in Baltimore, Md., June 24.

During Dr. Ames' tenure with NACA, such developments as the cowling for radial air-cooled engines, the low-drag wing, proper location of engines and nacelles in the airplane's wing, size and location of control surfaces, tricycle landing gear and general streamlining and contour appeared.

Dr. Ames was one of the original NACA members appointed by President Wilson in 1915. He served in both his official capacities without pay. At a meeting of the Committee in 1939, in which year Dr. Ames resigned because of ill health, a resolution was offered, which said, in part: "When aeronautical science was struggling to discover its fundamentals, his was the vision that saw the need for novel research facilities and for organized and sustained prosecution of scientific laboratory research . . . ."

Long associated with Johns Hopkins University as teacher and researcher in physics, Dr. Ames was that institution's president from 1929 to 1935. NACA's aeronautical research laboratory at Moffett Field, Cal., is named "Ames Aeronautical Laboratory" in his honor.

Donald M. Martin

Donald M. Martin, 52, managing-director of Canadian Wright, Ltd. since its beginning in 1927 and a director of British Aeroplane Engines, Ltd., died in Montreal, P. Q., it was announced June 16.

Martin was instrumental in forming Bellanca Aircraft of Canada, Ltd., and Aircraft Industries of Canada, Ltd., of which he was president. He was also considered responsible for the formation of Noorduyn Aircraft, Ltd. in 1935, and for a number of years was in charge of sales there. He assisted in the establishment of several of the air transport services in Canada.

Jules E. Young

Jules E. Young, 45, assistant plant manager at the Santa Monica, Cal., plant of Douglas Aircraft Co., died June 23 of heart disease. Young first became associated with Douglas in 1917, when they both were with Glenn L. Martin at the old factory on the outskirts of Los Angeles.

"Setting Sun..."

It's only the Japs' congenital myopia that tells them theirs is a *rising* sun. For it is setting, sure as shooting. And shooting is very sure in these days of awakened American skills and energies. A new day is dawning—but not for Japan. American fliers and American-made equipment have been tried and not found wanting. Now it only remains for them to rise in an ever-blackening cloud that will blot out the last evil rays of hope for the sinking suns of Rome, Berlin and Tokyo.

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for the boys "upstairs"

NO LONGER ARE BLIND SPOTS the flyer's nightmare. Now pilots, bombardiers and gunners have "greenhouses" to let them see clearly, above, below and all around.

At the "University of Petroleum," Shell's research laboratories, a way was found to combine molecules from petroleum gases which makes possible the molding of these smooth, tough, transparent globes of open "daylight."

It is this same genius for making petroleum molecules behave that first produced 100 octane fuel in commercial quantities . . . that has helped make Shell Aviation Fuels the preference of the majority of the country's leading plane and engine manufacturers. Shell Aviation Products are also preferred by many airlines, aviation training schools, and airports.

Farsighted airport operators will find Shell's wartime popularity a profitable peacetime asset.

AVIATION FUELS SHELL **AEROSHELL OILS**

Whiting cranes are serving shipyards producing Liberty ships. —Photo courtesy Kaiser Co., Inc., Vancouver, Washington.

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—or an Engine in a Bomber

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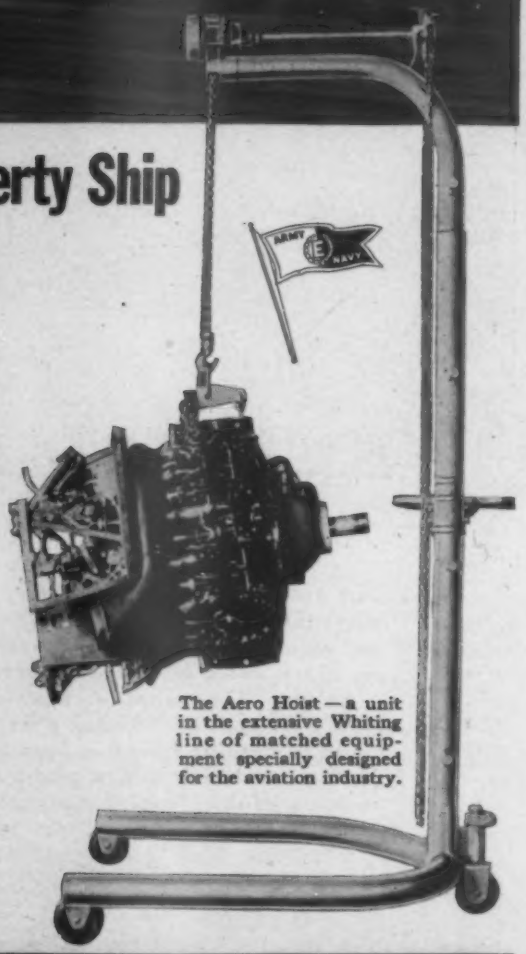
Today, this broad experience is available to the aviation industry. An extensive Whiting line of matched aircraft maintenance and handling equipment is being produced . . . and the Whiting Collateral Engineering Service is collaborating on many of today's aviation problems.



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More than that: air transport is now laying the groundwork for the passenger and freight routes of tomorrow. Wherever these planes go, Western Electric equipment goes too.
This team of Wings and Words will play a mighty part in shaping the free world it is helping to win. Western Electric—maker of Bell Telephones and pioneer in radio telephony—will be there with the equipment to serve America's airlines.
Western Electric
ARSENAL OF COMMUNICATIONS EQUIPMENT

"My heart's in the sky . . .

". . . up there with him in those battle torn heights, where tracer bullets blaze trails of destruction and planes drop death on those below. And for a while it must be this way.

"But I see beyond all that . . . high above today's chaos. There, untraveled, untouched by man-made wings waits virgin air . . . tomorrow's skyroad, through which planes of the future will flash at speeds as yet untried. And some day loved ones, parted, will feel less alone in knowing that reunion is never more than a few short hours away.

"Surely you understand why I say . . . now, and from now on . . . *my* heart's in the sky."

Yes, we understand. For we, too, see beyond the stunning, devastating force of the airplane in today's struggle against tyranny and oppression. And we look forward to the time when new and happier forces will circle an earth at peace. A day when all men will be closer along the swift highroads of the heavens . . . made friendlier by common interests in a new-found world community.

Today we of Chicago and Southern think of a war that must be won. So we give our efforts and fly our planes first in the service of the nation. But we can understand the feeling of dauntless American womanhood. For when we think of that victorious tomorrow, *our* hearts, too, are in the sky.

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American Aviation

Air and Surface Carriers Face Battle

Congress Asked to Legislate on Invasion of Air Realm by Surface Carriers

By Wayne W. Parrish

THE lines are forming for the biggest battle the air transport industry has yet faced. With steamship, railroad, bus and truck companies—everybody but canal boat companies—filing applications for airline routes, the vital question of whether surface carriers are to be permitted to invade the realm of air transportation is scheduled to come up in Congress after the summer recess.

The Civil Aeronautics Board sooner or later must face the problem of handling the route applications from surface carriers. The issue is unavoidable. So far a few have been handled and the results have been no runs, no hits and no errors for the surface interests. The CAB has shown no inclination to permit surface carriers from entering the air business.

But the CAB unquestionably would like Congressional support, and this support seems on the way. As far as legislation goes, the Civil Aeronautics Act of 1938 was pretty plain that surface carriers were to keep out. So is the new pending Civil Aeronautics Act of 1943 which Rep. Clarence Lea of California has been pushing into action. But railroad and steamship lobbyists almost succeeded late in June in eliminating three all-important words from the bill which would have taken down the legislative bars considerably. It is to be expected that the powerful rail and steamship lobbies will not rest on their oars during the recess.

One of the most encouraging developments came on July 1 in the Senate when Senator Burton K. Wheeler, Montana Democrat and chairman of the Senate Interstate Commerce committee, announced that he would introduce legislation this fall to prohibit the railroads from owning truck and bus companies, and indicated he would include air carriers in the limitation also. He was supported by Senator Bennett Champ Clark, Missouri Democrat.

Senator Wheeler said:

"There is a concerted effort now being made to permit railroads to get into the bus and truck business. When Congress reconvenes after the recess I intend to introduce proposed legislation to prevent railroads from owning busses and trucks. I think the railroad business should be divorced from the bus and truck business.

"I think the express companies, which are owned by the railroads, should not be permitted to engage in the trucking business. I think the railroads should not be in the trucking business; I think the railroads should not be in the water transportation business, and I think they should not own air transportation facilities.

"I know the idea exists in the minds of many persons in this country that all forms of transportation should be owned by one group. If that ever happens we will have no competition in transportation in the United States. I shall oppose any such movement with all my strength."

Senator Clark entered the discussion with the revelation that his subcommittee on civil aviation of the Commerce Committee has been holding preliminary informal hearings to guide the committee on its postwar attitude toward aviation. Although he did not so state on the floor, it is known that his committee has listened to Juan Trippe, president of Pan American Airways, and to W. A. Patterson, president of United Air Lines, and a few others.

In the Senate discussion Senator Clark said:

"I am very happy indeed to hear the statement made by the Senator from Montana. It seems to me that until such time as we come to a system of monopolistic control, under which a man could go to an office at Helena, Mont., or Bowling Green, Mo., or Madison, Wis., or Bismarck, N. Dak., or any place else, and ask one responsible official what was the cheapest way for him to transport a bill of goods from one point to any place on the habitable globe, and have it routed by the cheapest possible route, whether by air, by rail, or by water, or part water, and part air, and part rail—a sort of monopolistic control which would necessarily mean Government ownership as I see it—I say, Mr. President, until we come to such a time as that there ought to be the completest competition and separation between these various forms of transportation.

(Turn to page 42c)

Justice Dept. Seeks Intervention In Proposals of Surface Carriers

By William Thompson

THE Department of Justice served notice on five powerful surface transportation companies last fortnight that their applications for air routes, filed last month with the Civil Aeronautics Board, failed to show "the effect of subsidies of air transport by surface carriers upon independent airlines."

In a petition filed with the CAB July 1, the Department requested leave to intervene in proceedings before the Board involving new route applications by Keeshin Air Freight, Greyhound Corp., Pan Atlantic Steamship Co., Universal Air Freight, and Kansas City Southern Railway Co.

"The issue is raised in this proceeding whether competition of independent airlines will be so restrained that (such) surface carriers can establish a monopoly of air transportation," the petition said.

It stated that the Department of Justice will investigate the five applications because:

1. Private parties to the proceeding are not primarily concerned with the substantial public issues involved because of their property interests.

2. The Department of Justice is the only governmental agency charged with the duty of investigating complaints with respect to restraints of competition and monopolies and to present evidence thereon.

3. Participation by the Department of Justice in this proceeding is in furtherance of the anti-monopoly policy of Congress as expressed in the Civil Aeronautics Act of 1938, as amended, which the Board administers, and the Federal antitrust laws, which the Department of Justice must enforce.

"Keeshin Air Frieght, Inc., a wholly owned subsidiary of Keeshin Freight Lines, Inc., seeks to establish an air transport service of property extending between 79 basic points in the United States," the petition points out. "This service would extend between said basic points and 127 other principal points in the United States, through 16 basic gateway points, and between said basic points and points in foreign countries; a railroad and railroad bankers have a substantial stock interest in Keeshin Freight Lines, Inc.; and said airline service will be substantially competitive with the trucking operations of companies owned by Keeshin Freight Lines, Inc."

(Turn to page 42d)

Food Air Transport to Open Vast Field

By

Clifford Guest

TRANSPORTATION of foodstuffs by air on a scale which may revolutionize the usual channels of trade and create a vast new specialized field for the air transport industry is foreseen in the relatively near future as a result of successful experiments and studies which have been progressing steadily in this realm during the past year.

That airlines and aircraft manufacturers are wide awake to the commercial possibilities and the unique services air transport can perform in the food industry, and are moving swiftly to prepare for it, is revealed in a survey made by *American Aviation*.

A number of airlines are making independent researches, most of them dealing with specific food commodities most suitable for handling in the particular regions they serve. Air Cargo, Inc., from its headquarters in New York has a full scale study underway to analyze all factors in commodity air transport, with considerable emphasis upon foodstuffs and especially with reference to international trade.

The government's Bureau of Domestic and Foreign Commerce is cooperating heartily in all of these studies and is initiating others, notably a detailed analysis of all products moving in foreign commerce, their origin costs, markets, and adaptability to swift movement to U. S. sales centers. When completed, this will be an invaluable reference to the industry.

Associations of fruit and vegetable growers and packers also have become interested in the marketing advantages offered by air-movement, and are contributing to various phases of the studies.

At least one large transport and cargo plane manufacturer has a staff of men

(1) A meat technologist of the Department of Agriculture illustrates how much water is contained in pork. Pile of meat, at right, weighs 60 lbs. Jug contains 41 lbs. of water, which was extracted from similar amount of pork, leaving dehydrated product is shown at left.

(2) Compressed Cheddar cheese is shown before and after dehydration and compression. In latter form it contains only 3% of water as compared with 36% in original form. Dehydration, followed by compression, reduces volume one-third. Rectangular blocks require 53 to 58% as much shipping space as original round boxes.

(3) After being reduced to a concentrate, all of the oranges shown can be packed for shipment into a carton containing six one-gallon cans of the fluid.

(4) Dehydration effects a 10 to 1 reduction in weight of carrot. Pile of raw carrots weighing 145 lbs. shrinks to pile weighing 14 lbs.

(5) Picture shows how dehydrated foods are packed in modern cargo planes. This one is attached to the Naval Air Transport.

studying the possibilities of designing planes specifically for the scientific accommodation of food shipments.

Experiments with food air-transport—particularly some conducted in South America to meet an emergency—have more than met expectations and have foreshadowed commercial-scale adoption as rapidly as war conditions will permit.

The wartime necessity of moving tremendous quantities of food to far-flung fronts has spurred researchers in the development of highly successful methods of processing foods for the conservation of space in shipping. Doing away with the problem of bulk, heretofore always characteristic of food handling, has made these products particularly adaptable to air transport.

Methods of dehydrating, concentrating and compressing food have been perfected. A brand new industry of commercial proportions has grown up around these processes and is being expanded steadily, with the fullest encouragement by the government. The natural corollary—better packaging to further conserve space—has received an equal amount of study and development.

Food shipments to the armed forces and to allied nations under Lend-Lease account for the unusual government interest in this new industry.

The Department of Agriculture reveals that in the 13 months it has operated a program to encourage expansion of the industry, 187 additional vegetable dehydration plants, with an estimated capacity of 200,000,000 pounds annually, have been approved for addition to the domestic vegetable drying industry. For the most part these new dehydration units are canneries or other food processing plants that have been converted to this new method of preserving food. Thirteen months ago only 20 plants, with a production capacity of about 15,000,000 pounds annually, were operating in the U. S.

Dehydrated vegetables take from one-third to one-sixth the freight space required for similar products processed in other forms. Chemists and engineers of the Agricultural Research Administration are continuing to develop new refinements in the methods.

Contracts have been awarded this year by the Army and the Food Distribution Administration for 140,391,250 pounds of dehydrated vegetables and soups, almost 10 times the annual production of the domestic dehydration industry at the time the expansion program was inaugurated.

Dehydration of meat has been developed equally successfully, with continuous study being carried on for more than a year at the Agricultural Research Center, Beltsville, Md. War Production Board maintains a bank of critical materials and grants special priorities for the construction of dehydration facilities. In the vegetable line, dehydration has proved especially successful with Irish potatoes, sweet potatoes, cabbage, carrots, beets, onions and rutabagas.

As examples of space saving, Secretary of Agriculture Wickard stated that eight pounds of dehydrated Irish potatoes is the equivalent of a bushel of raw potatoes weighing 60 pounds; a pound of dehydrated cabbage is the equivalent of 20 pounds of the fresh product. Dehydrated foods also are relatively non-perishable.

Adding to this picture, officials of War Food Administration told *American Aviation* that compressed foods are the ultimate in saving ocean, land and air cargo space—and within six months will represent a substantial share of total food shipments. Compressing of foods, particularly those which have been dehydrated, is being expedited by FDA.

Lift Truck: A cargo plane of the Air Transport Command is shown being loaded with vital war machines from a truck equipped with elevator. This type of truck is expected to play a major role in postwar air transport.

After dehydration removes most of the water from a food, compression goes one step further, squeezing the food into the smallest space practicable. Flour, for instance, can be so compacted that up to 20% more will go into an ordinary sack.

FDA officials said that among compressed foods, dehydrated soup shipped to the Allies during May resulted in an estimated saving of 20,000 cubic feet of shipping space. During the same month, compression of dehydrated eggs resulted in a saving of 33,375 cubic feet.

Adoption of this program in South America, particularly from the air transport angle, was described last week by Dr. Josue de Castro, director of food and nutrition service for the Brazilian Coordinator of Economic Mobilization. In Washington to study food dehydration processes, he said they would help solve the supply problem on the rubber production front in the Amazon basin.

"They will simplify our transportation problems," he said. "For example, not long ago we made an experimental shipment of dehydrated meat from Matto Grosso, a cattle producing country. The equivalent of 200 cattle was carried on a small plane. The 200 cattle provided about five tons of dehydrated meat which fitted perfectly in a small plane. The weight of the 200 cattle alive was about 40 tons or enough to cover an airfield."

Recently the Civil Aeronautics Board, taking cognizance of the possibilities in food transport, sent out a questionnaire to U. S. airlines asking what steps they were taking in development of such projects. Almost uniformly the airlines declined to furnish details, indicating a strong reluctance to disclose their plans in what undoubtedly will be a competitive field.

It is known, however, that one of the western airlines has been making intensive experiments in connection with transportation of fresh eggs from the interior to the West Coast. The airplane division of one of the largest eastern manufacturers is studying a variety of food commodities. One of the biggest airlines is particularly interested in handling banana shipments from South America, and another line is doing research in the handling of seafoods, those customarily moved in carload lots.

Some study is being given to the idea of refrigerating cargo planes used for food hauling, but there appear to be no definite conclusions as to its necessity.

Air transport obviously can eliminate distance and climate factors in putting fresh out-of-season foods down in markets practically everywhere. In this connection, cost and packaging factors are being given careful study, but more experience will be needed to determine whether the markets will sustain the extra cost of air transport.

An interesting speculation was raised by Fletcher Rawls, who formerly headed up some of these food studies in the Department of Commerce and is now a food industry consultant in Washington. Rawls suggested that whereas importers of spices and similar products have been able to set and control prices, swift and frequent movement of these commodities to the consumers by air transport might well shake up old monopoly practices and revolutionize the trade.

As another example of industry revolution, he pointed out that the large sealfur industry of Alaska is particularly adaptable. Furs compressed for shipment by air can be laid down at fur centers in St. Louis overnight, in contrast to the long time and extra handling required in the old boat-and-rail shipments.

General public acceptance of dehydrated foods remains one of the questions on which there can be no final conclusions, except through experience. However, in the postwar years when it is expected the U. S. will help feed many countries, dehydrated foods may become well established parts of the diet.

Numerous government officials are actively engaged in the food studies in connection with air transport. Among these are Dr. John Crane, chief of the trans-

(Turn to page 42c)

Lines Will Battle Ground Carrier Inroads—Talman

By PEGGY GUETTER

AIRLINES, individually and collectively, will fight encroachment of ground transportation companies in air industry, E. Lee Talman, executive vice president of TWA, told the Los Angeles press last fortnight. Talman declared that "airlines feel the field of the air is their province."

Questioned extensively on air transport future, the former treasurer of the airline, who was on his first West Coast inspection trip since assuming duties of executive vice president, reported that TWA in common with other lines was keenly interested in international routes and that his company will vigorously prosecute when the appropriate time arrives.

"As for competition with railroads and steamship, I personally feel air transportation will have its own tremendous impact on all forms of economic distribution and life. It will play a great part in generation of new business in new sections and countries," Talman remarked.

Every metropolitan city and area should plan for at least three large airports to handle the air transport needs which will arise within the next 20 years, he declared. He envisioned a central terminal from which passengers will be dispatched by helicopter, super-highway or electric highspeed railways to departure airports.

Terming foreign trade "the salvation of the post-war world," Talman sees no need for government subsidy of airlines if "we are going to recognize the world as an economic unit, but if we are going to erect barriers the world over, then subsidy will be needed.

"Technical skill and background of America's air industry will allow us to compete successfully in world air trade."

Discussing immediate phases of the industry, the executive said the need for more equipment on the domestic airlines was not a selfish, commercial cry. "The shortage is rapidly becoming critical in speeding war supplies and communications here at home."

He also stated that tentative date for inauguration of TWA service to San Francisco from Los Angeles as recently granted in CAB decision had been set for July 15 with the possibility of two daily schedules.

Aero Science Council Elects

Major Lester D. Gardner was elected chairman of the Council of the Institute of the Aeronautical Sciences, Robert R. Dexter, secretary of the Institute, announces. Bennett H. Horchler was elected executive vice president to succeed Major Gardner and George R. Forman was elected assistant to the president, Dr. Hugh L. Dryden of the National Bureau of standards, Washington, D. C.

Training Ass'n to Meet

National Aviation Training Association (WTS contractors) will hold its annual meeting in St. Louis Dec. 2-4.

'Altitude Teeth'

Metal fillings in pilots' teeth which cause "altitude teeth" are being given special attention by the Army, the War Department announces. So called because they cause trouble only at high altitudes, the teeth appear normal when the pilot descends to a lower altitude or the ground. It is difficult then, even with the aid of X-ray, for the pilots to tell the dentists which teeth are bothering them. When these teeth are discovered, the metal fillings are removed, a medication in the form of an anodyne filling used for two weeks, followed by the installation of a heavy non-conductive cement base and a new metal filling.

Jacqueline Cochran Named Head of AAF Women Pilots

Miss Jacqueline Cochran has been named Director of Women Pilots within the Army Air Forces and special assistant to Maj. Gen. Barney M. Giles, assistant chief of Air Staff, Operations, Commitments and Requirements, the War Department announces.

It was also announced that Mrs. Nancy Harkness Love, senior squadron leader of the Women's Auxiliary Ferrying Squadron since September, 1942, has been assigned to the staff of Col. William H. Tunner, commanding officer of the Ferrying Division, Air Transport Command, at division headquarters in Cincinnati, O.

Miss Cochran was formerly director of women's flying training of the Army Air Forces Flying Training Command. She holds four international and 17 national flying records. In 1938, she won the Bendix Trophy over a field of 11 men.

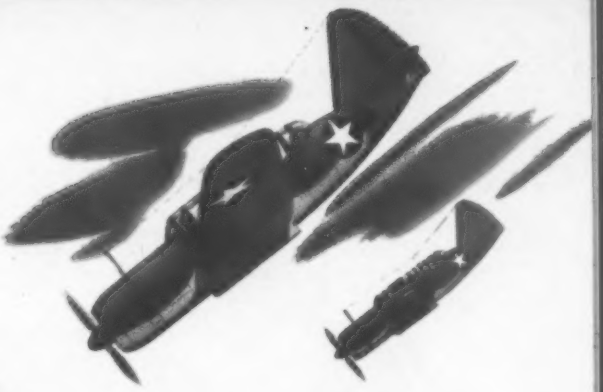
SAY IT ISN'T SO

NEWS ITEM: *"Army 'brass hats' accused by 'American Aviation' of hoarding 21-passenger transport planes to use on week-end trips to homes under guise of 'conferences' that could be handled by 'phone.'"*

HAVE THE FULL CREW ON BOARD - I DON'T WANT TO GET LONESOME ON THE TRIP!
ANY BAGGAGE, GENERAL?
JUST MY SHAVING KIT!
WISH I COULD GET THE CREW TO FILL IN FOR A GAME OF BRIDGE!
INVASION?
NYA, AN OFFICE COMMANDO WANTS TO FLY TO DAYTON!
NOW OCTANE ONE
-AND HE'S BEEN WAITING FOUR DAYS TO GET A SEAT ON A TRANSPORT!
RESERVED
PLEASURE DRIVES BANNED FOR DURATION -O.D.T.

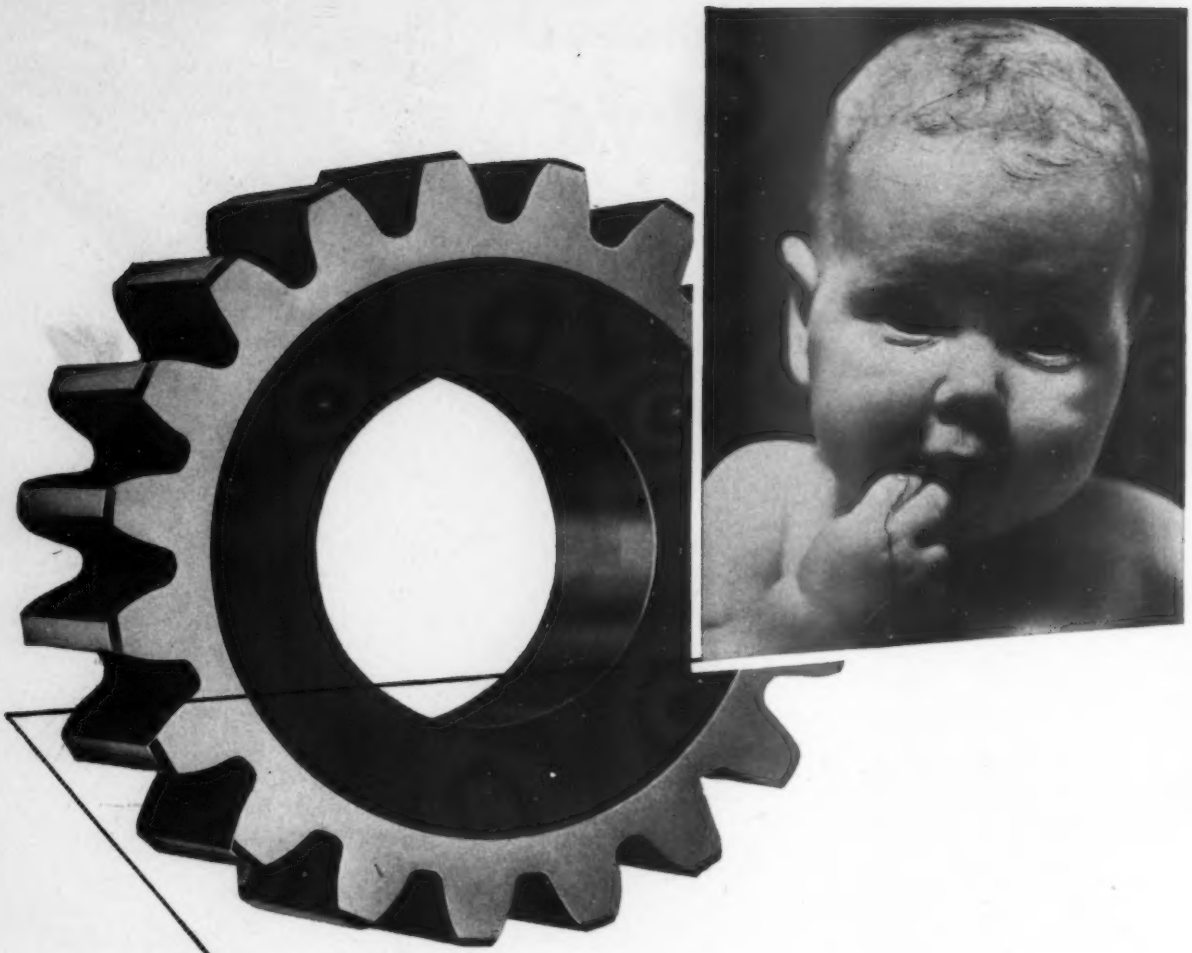
The New York World-Telegram's famous cartoonist, Johnstone, used the lead editorial from the July 1 AMERICAN AVIATION as subject matter for one of his daily strips as shown above.

F.O.B. Tokyo



CARGOES of destruction for Tojo, delivered by Brewster dive bombers with Curtiss Electric Propellers, will make the strong arm of the Navy felt at new long ranges. Thus will our two-ocean fleet extend its strength far beyond its doubled tonnage.

ELECTRIC
CURTISS
PROPELLERS



WHEN IT COMES TO CUTTING TEETH...

Cutting teeth . . . properly . . . is an important job. And where *gears* are concerned—that's where we come in!

Even the smallest gear is a mighty important part of the nation's industrial war machine. It is vital, therefore, that each and every tooth be uniform. Hence, gear grinding today must combine ultra high precision with unquestioned dependability.

As manufacturers and manufacturers' representatives of super precision machine tools and instruments, COSA Specialists are in a position to show you how you can attain consistent accuracy and highest efficiency in your tooling operations, AND, at the same time, reduce cost, time and labor.

COSA CORPORATION is sole distributor for SIP (Société Genevoise) Machines; Maag Gear Grinding Machines; Mikron Machines; and numerous other precision machines imported from Switzerland. If your tooling problem is one that can be solved by high precision methods, discuss it with one of our engineers. His broad experience may hold the answer. Write to the Cosa Corporation, 5000 Chrysler Building, New York 17, N. Y.

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AA Proposes New Routes in Network Serving 10 States

BREAKING the long period of inactivity in new route plans by the four major airlines, American Airlines on July 6 filed a series of applications for new routes covering 35 new communities in 10 states and designed to strengthen materially the company's present system.

Surprise feature of the applications, which will inevitably draw heavy fire from competing companies, is American's desire to fly to Miami, to New Orleans, and to Minneapolis-St. Paul, all points being distant from American's present routes.

Almost every airline in the United States is affected directly or indirectly by American's applications. Only Northeast, Colonial, Continental, Inland and Western are not concerned, and only the northwest and the New England areas were not covered by the system's extensive plans. The filing will probably bring out the disclosure of new route plans of other carriers in short order.

Accompanying the applications was a letter from A. N. Kemp, president of American, to L. Welch Pogue, chairman of the Civil Aeronautics Board, explaining the reasons behind the applications. The letter read as follows:

"Dear Mr. Pogue:

"There has been filed with the Board today on behalf of our company an application for certificates of convenience and necessity, a copy of which is enclosed for your information, covering the expansion of certain of our present routes and the inauguration of others. This application is the result of careful and exhaustive studies and I am taking this opportunity of expressing to you some of our thinking pertaining thereto.

"The airlines of the United States have a definite obligation to expand in order to serve the public and bring the benefits of air transportation to new communities. It is properly required of them that they provide adequate air transportation facilities to the communities they serve. But, to meet the demand we know will be put upon air transport after the war, we believe it is necessary now that the airlines improve their facilities by providing through service and by taking short cuts to save time and permit lower passenger fares and express charges wherever the volume of potential traffic warrants it. We believe they should extend and consolidate their routes wherever that will result in economies or needed improvements in service.

"American Airlines, Inc. proposes to serve the communities along its routes in the best possible manner and to give them adequate air transportation facilities. It is our policy to expand our service to other communities wherever such expansion will benefit them and the public in general.

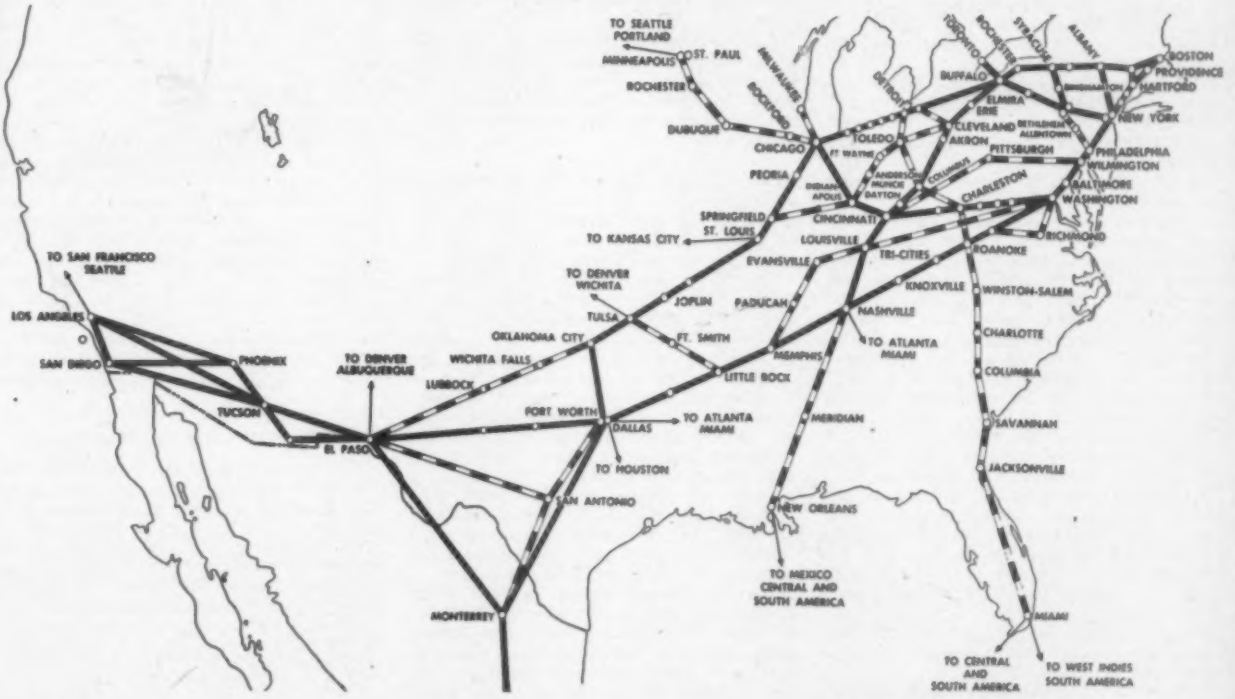
"Unfortunately, due to the war, diversion of equipment made it necessary for us to curtail service and subsequently prevented expansion to meet growing needs. This must be corrected at the earliest opportunity.

"The application enclosed herewith, together with those already on file with the Board, represent American's present conception of how this company can best increase its contribution to meeting the public need for air transportation within the United States, and we respectfully request your early and favorable action."

"A. N. Kemp
President"

One of the major new routes asked by American would provide a direct Detroit-Miami service, while another would link several American routes to provide a Memphis-El Paso cut-off to the present southern transcontinental. Mid-western cities would be linked together much more closely according to the plans, while the Twin Cities route would invade the main leg of Northwest Airlines between Chicago and the Twin Cities. A direct service from Cleveland and Detroit would be provided to New Orleans, and another direct entrance to Washington would be provided from Louisville.

(Turn to page 42a)



35 More Communities: In the application of American Airlines for new routes, 35 communities not now reached by AA would be served in 10 states. Heavy lines show the routes operated and cities now served by the company. Proposed new routes and extensions of present routes are indicated by the broken lines. Arrows show the directions of the most important air connections.

President Opposes Passage of Lea Bill

Objects to Independent Air Commission; Lea Plans to Push Bill Anyway

By KATHERINE E. JOHNSEN

A LETTER from the President opposing separation of the Civil Aeronautics Authority from the Commerce Dept., as proposed in the Lea bill, adds a new complication to be ironed out by Interstate and Foreign Commerce Committee when they resume consideration of the legislation after the Congressional recess.

The President's letter to the committee asserted that to change the setup now would "so distract the attention of officials and employes of these agencies, and so impair their efficiency, as to seriously interfere with the contribution which they could otherwise make in the interest of securing successful civil aviation in the conduct of the war."

The Chief Executive's concern seemed to be that the changes are contemplated "at the present time," when, he said, the services of the established agencies are so greatly needed by the armed forces. Other phases of the proposed legislation were not mentioned.

After six months' active consideration, the bill, viewed as commercial aviation's charter for postwar operations, has made no actual progress toward enactment. It is still with Interstate and Foreign Commerce.

During the fortnight, Committeemen worked diligently on print No. 2—the fourth version, received the President's message of opposition, brought out print No. 3—the fifth version—on July 1, and voted on the same day to shelve the measure until the Fall.

The impossibility of getting House action on the comprehensive 120-page bill before the Congressional recess, prompted his Committee to lay it on the table until the Fall, Chairman Clarence F. Lea (D., Cal.), author of the measure, reported to *American Aviation*.

This will give members of the industry and other interested parties throughout the country an opportunity to study the latest revision and voice their opinions to the Committee before the bill is reported out, he remarked. Lea predicted that, aside from such outside suggestions which will be evaluated by the Committee and possibly included, the legislation would be recommended to the House substantially in its present form (committee print No. 3).

The Presidential opposition to the bill's proposal to establish an independent Civil Aeronautics Commission, in lieu of the Civil Aeronautics Authority under the Commerce Dept., has not and is not likely to thwart his Committee's action, Lea declared. (Committeemen brought out print No. 3 subsequent to the President's message). After a conference with the President, Lea stated he is convinced that "the president is not very set in his opposition."

Formidable opposition to the separation of the CAA from the Commerce Dept. from Secretary of Commerce Jesse Jones has been anticipated by Interstate and Foreign Commerce Committeemen since the proposal was first made in committee print No. 1.

Wins Award: John Groves, manager of the Washington National Airport, left, is shown receiving a trophy from C. Bedell Monro, president of Pennsylvania-Central for his "outstanding and efficient administration" of the airport.

On all major matters, the Committee's third print is in line with the two preceding prints. In the main it is an improvement in legislative form and includes certain clarifying amendments.

The fundamental policy of federalization of U. S. airspace and federal regulation of U. S. air commerce, a policy recognized as inevitable to the creation of a strong national air system, is the declared policy of the latest version of the Lea bill, as it has been of the four preceding. Retained in the third print are the bill's forward-looking provisions anticipating postwar aviation development and requiring planning by the executive agencies of the government. Such provisions, for example as those requiring (1) the Civil Aeronautics Commission to report to Congress and make recommendations for the swift development of peacetime air commerce, (2) the Postmaster General to investigate the possibilities of eliminating surcharge on airmail, (3) the CAC to probe aviation insurance and reinsurance practices, (4) the Weather Bureau to plan for international dissemination of meteorological data, (5) the Civil Aeronautics Administrator to train aviation mechanics and pilots and promote aviation education among the youth of the nation in several specific ways.

The third print of the Lea bill, although making no major revision over the preceding print, is very significant, in view of circumstances, for the very reason that it does *not* make major revisions. It is significant because:

1. It does propose establishment of an independent Civil Aeronautics Commission, over the objections of high Administration forces. Under this proposal, the present Civil Aeronautics Board would become the Civil Aeronautics Commission, independent of the Commerce Dept. The present Civil Aeronautics Administration would be under the direction of the proposed CAC, but would have exclusive jurisdiction over certain matters. A Director of Air Safety would be established and would work independently of the CAC.

2. It does maintain the fundamental policy of federalization of U. S. airspace and federal regulation of U. S. air commerce, in the face of the staunch and expressed opposition of State's rights advocates.

3. It does prohibit other transportation carriers from entering the air transport field, except with the approval of the CAC, as under existing law, in spite of the powerful fight waged by railroad, steamship, bus and truck lobbies to alter this provision of law.

Aviation leaders anxious for the Lea bill to be in working operation by the time the war ends, view with dismay the long congressional journey ahead of it. Before House action, there are likely to be prolonged discussions this Fall in the Interstate and Foreign Commerce Committee in an effort at wording changes to alleviate objections from state's rights proponents. Before the Senate acts, its Commerce Committee will review the legislation with a fine comb at public hearings and in executive sessions. And, after Senate action, conference procedure for compromising on House and Senate differences seems almost inevitable. The Senate Commerce Committee has evidenced no indication of acting on the legislation until House action has been completed, although at the beginning of the session Chairman Josiah Bailey (D., N. C.) did introduce a companion measure which is pending before Sen. Bennett C. Clark's (D., Mo.) aviation subcommittee.

Navy to Test Helicopters

After acquiring several helicopters from the Army, the Navy plans to make severe and exacting tests in rough weather of this craft, which it has designated as YR4, according to Navy officials. Naval people are particularly interested in discovering whether the "YR4" can land on a pitching ship, and just how it will behave in a storm. It is felt the slow speed of the helicopter would be a disadvantage in convoy work.

Control Airport Named

Kellogg Field, Battle Creek, Mich., has been designated as a control airport by C. I. Stanton, administrator of Civil Aeronautics, Department of Commerce.

Petroleum Research and War in the Air

One of a series of original Esso research developments that help give U. S. planes an edge in the air.

THE world can thank Glenn L. Martin Company for some of this war's really great planes. Our Army's B-26. The Navy's PBM. The British A-30. The 70-ton Mars.

And when you dream up new planes, you also cook up new problems for oil.

How to meet the colossal thrust on landing gear shock struts when a fast-flying B-26 sits down, for instance.

Or how to hydraulically control flaps, turrets, bomb bay doors, and other points with an oil which will operate in planes that take off at ground temperatures of 120 degrees at sea level, and meet a possible 100 degrees or more *below* zero in the troposphere.

You can see why we take especial pride, here at Esso in our Univis hydraulic oils which are not only the original all-temperature oils but also the best known of all hydraulic oils today.

Their origination was made possible by Esso discovery, years ago, of a petroleum derivative called Paratone... the value of which was proved in close cooperation between Martin engineers and our own.

The air-minded character of Esso Research over long years past has been more than justified by the fruits it has born for aviation engineers faced day after day with almost impossible problems during the war.

*ARMY-NAVY SPECIFICATION AN-VV-O-366-b
*ARMY AIR CORPS SPECIFICATION 3580-C
*NAVY SPECIFICATION 339-a

What is the Aqua

THE AQUA SYSTEM is the *modern* method of gasoline storage and fueling employed widely at military and commercial airports.

This principle of operation insures delivery to the planes of clean, dry fuel . . . and prevents loss of volatile high-octane constituents by evaporation.

Completely underground...it eliminates the traffic of fueling trucks on busy fields.

Briefly, this is how the system works:

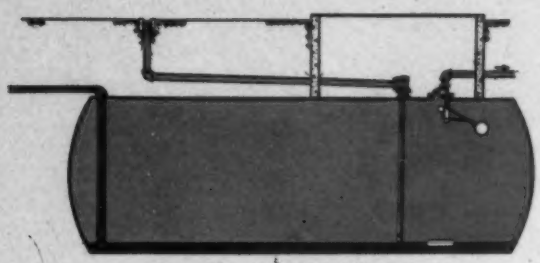


FIG. A FULL TANK

Fill Control Valve Closed
Delivery Control Valve Open

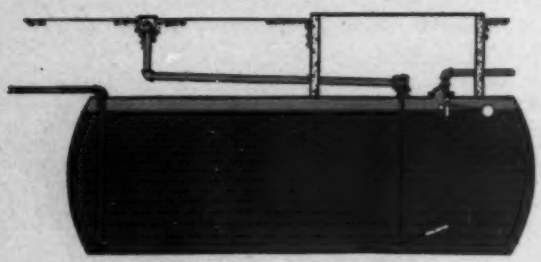


FIG. B EMPTY TANK

Fill Control Valve Open
Delivery Control Valve Closed

TO FILL THE STORAGE TANK, the hose from tank car, barge or tank truck is coupled to the fill connection. Delivery is made through the fill control valve and gasoline from the tank car flows into the storage tank, forcing out water through the water connection.

In FIG. A the storage tank has received its maximum fill of gasoline. The water has reached a minimum level—causing the float of the fill control valve to fall, closing the valve and preventing the entrance of any more gasoline.

TO DISPENSE GASOLINE. Gasoline displaced by water entering through the connection at the left flows freely through the delivery control valve, from the *top* of the storage tank. There is no space in which air can form explosive mixtures. Any dirt has settled to the tank-bottom.

In FIG. B nearly all of the gasoline in the tank has been displaced by water. The high level of the water causes the float to close the delivery control valve. The tank must be filled again with gasoline before further dispensing is possible.

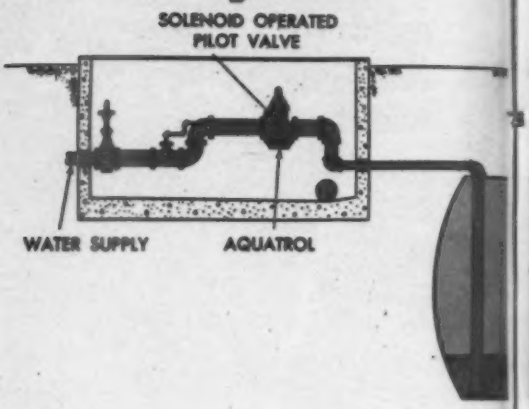


FIG. C

a System ?

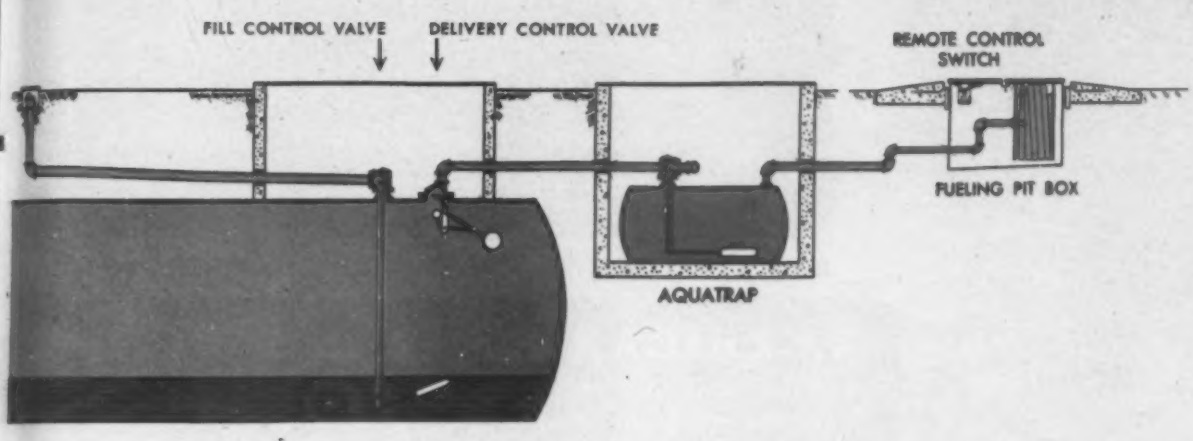


FIGURE C shows the Water Control Pit (to the left), containing the Aquatrol with a solenoid-operated pilot valve. This is connected electrically with the remote control switch in the Fueling Pit Box. The Aquatrol regulates the flow of water into the storage tank to provide the pressure to force out gasoline through the delivery hose, which is seen coiled in the Fueling Pit Box. When the switch is off, pressure on the storage tank is removed by automatically shutting off the water supply port and opening the drain port.

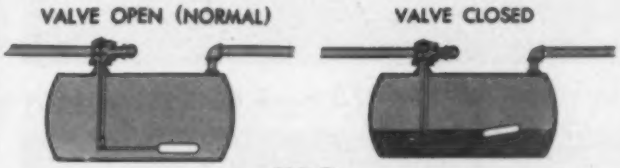
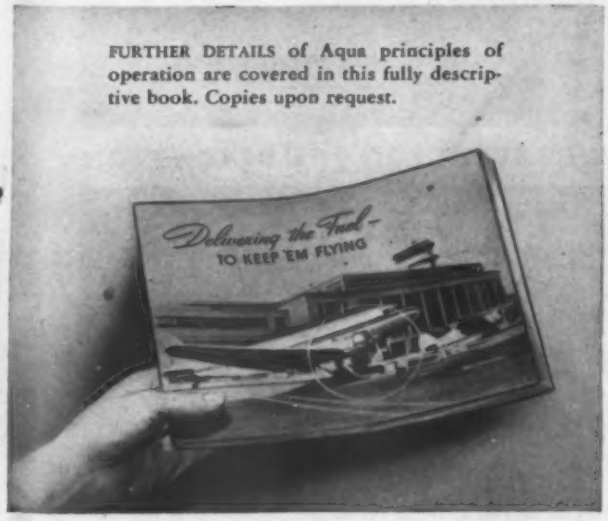


FIG. D

AQUATRAP (see FIG. D) gives additional protection. Its valve normally is open. Should any water enter the Aquatrap through failure of the delivery control valve in the storage tank to function, then the Aquatrap valve is shut off by the float before water can enter the fuel delivery line.

FURTHER DETAILS of Aqua principles of operation are covered in this fully descriptive book. Copies upon request.



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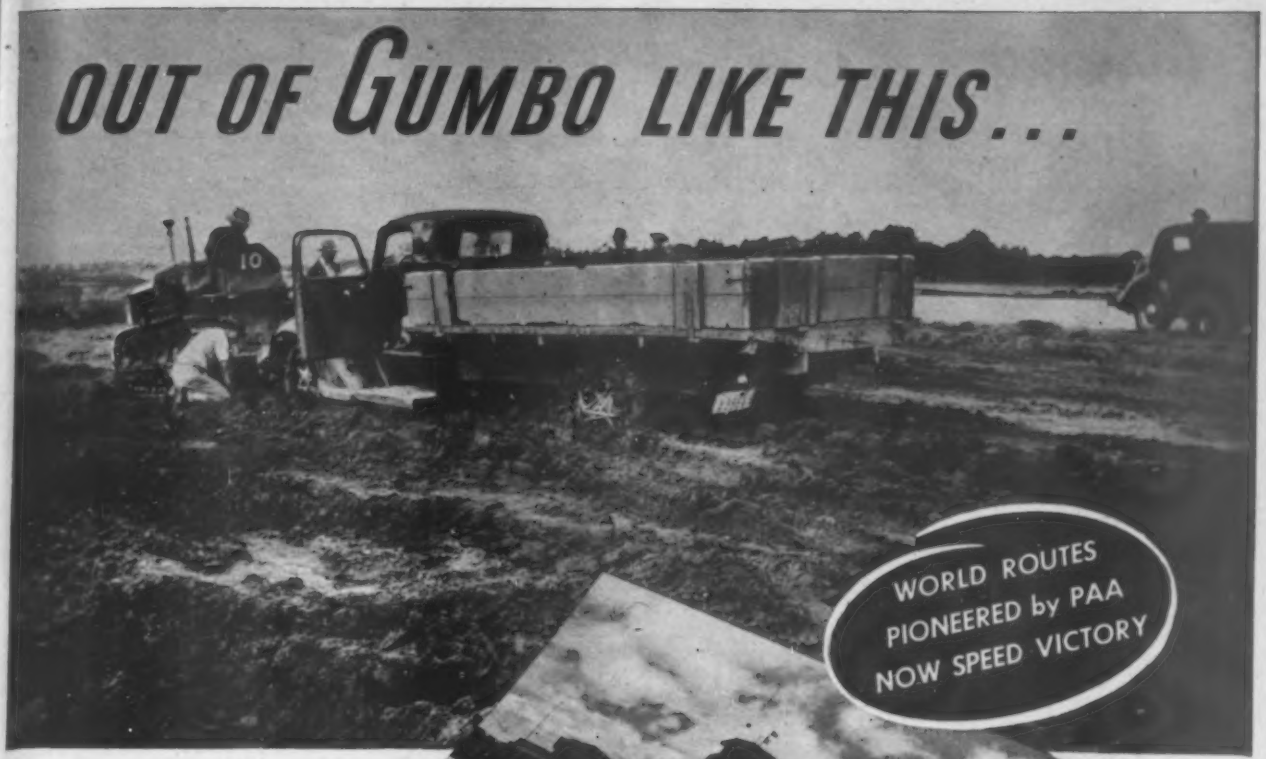


WORLD ROUTES PIONEERED by PAA NOW SPEED VICTORY

OUT OF JUNGLES, swamps, dust and dangers—on coral islands and in sub-arctic wilderness—Pan American has created modern airports the world around.

LA SABANA AIRPORT—pride of the Costa Rican Government—as it looks today. Pan American Airways, at the invitation of the government, occupies the control tower (shown at the left) rising 75 feet above the new terminal building.

THE "PRIDE OF COSTA RICA"

THE original Pan American airport in Costa Rica was built, over ten years ago, entirely at Pan American's expense . . .

But when the Costa Rican Government saw at first hand the benefits of air transport, they set out to build, at *San José*, one of the finest airports in all Central America . . . Pan American co-operated closely with Costa Rican officials . . . Built hangars and other buildings of steel, brick and concrete for the company's own use . . . Installed a generator to supply electric power for communications in case city power failed.

Today, in the "Good Neighbor" nation of Costa Rica there is another of the key "stepping stones" to Victory for which, all over the world, the groundwork was laid 10 to 15 years ago by the vision and hard work of Pan American pioneers.

In many cases such work could have been carried out only by national companies who were qualified to own and operate air-transport facilities *in their respective countries* . . . Fortunately Pan American World Airways' affiliated national operating companies *were* so qualified.

Without exaggeration, it can be said that the existence of routes pioneered by Pan American has saved the United Nations' aerial war transport many long months—maybe even years.

Wings over the World

PAN AMERICAN WORLD AIRWAYS

BUY WAR BONDS

CAP Belittled in Congress; Deeds Praised in OWI Report

The Civil Air Patrol was praised and belittled last fortnight. The bouquet came from OWI which released a 25-page report calling CAP "the world's largest aerial home guard." Testimony before the House Appropriations Committee revealed War Department plans for reducing the Patrol to a "courier service."

A reduction of nearly $4,000,000 in CAP's 1943 appropriation called forth congressional comment at the hearing. Major General O. P. Echols explained that CAP would no longer be needed as a "defense aid" because its work has been absorbed by other facilities. "CAP has been reduced to a courier service for the various air forces and the Air Service Command," he said. "I understand it has been and is useful to those organizations, with particular reference to carrying small packages and small spare parts from larger depots or subdepots out to the small fields on a sort of an emergency distribution basis."

According to OWI, CAP with its more than 75,000 volunteer airmen operating out of 1,000 U. S. airfields "has grown from small beginnings to an outfit of such *size and value* that it was taken over by the War Department and is now an auxiliary arm of the AAF."

From Echols testimony it would appear that the Army did not actually appreciate the "value" of the "Flying Minute men." But CAP officials told *American Aviation* that far from being curtailed, "all CAP activities are continuing as usual, with an early prospect for expansion, especially in inland activities of the courier type."

OWI points out that more planes are available for CAP assignment today than the entire Army Air Force possessed at the beginning of 1940 and that the United States and Russia are the only countries which have permitted civilians to fly in wartime.

CAP units maintain strict military discipline on their own initiative and at the same time have a semi-military flexibility, the report states. Each wing, group and squadron has its own commander and staff officers assigned to special duties such as operations, intelligence, communications, transportation and medical work. About one-third of the members of a typical unit are pilots, one-third are student pilots and the rest are observers or have special ground-crew skills.

Some members sign up for three to six months active duty, some for one month vacations from their regular job, some spend Sundays flying and study several nights a week. The basic CAP course emphasizes military subjects such as infantry drill, discipline, first-aid, gas protection, military secrecy and signalling. The advanced course includes meteorology, air navigation, crash procedure and flying missions simulating wartime work. About 10 per cent of CAP's members are women.

Members on active duty get subsistence pay and moderate rental for planes. While not on active duty, they serve without compensation, paying for operation of their own or rented planes. In fact, they carry on so many emergency patrol and practice flights at their own expense, that the volunteers are estimated to be spending about $1,000,000 a month of their own money.

As a result of all its practice missions and drills, 16,000 trained men have gone from CAP into the armed forces. In answer to a hurry call from the AAF's Ferry Command early in the war, one wing alone provided 50 trained pilots in three days. One of the greatest services has been the maintenance of a pool of trained people available for special jobs. CAP headquarters keeps a punch-card system of detailed information on personnel. If a rush inquiry comes in for a man who can pilot a two-motor plane and speak Spanish, who is an expert photographer and night flyer experienced in flying over coastal areas, the punch cards go through the sorting machine at the rate of 400 per minute. Out come the dozen or hundred who suit the specifications, and culled from these, a man can be on his way within the hour.

Included among the CAP activities which the report highlights are those whose existence was threatened by Gen. Echols testimony: submarine spotting, coastal patrol and rescue work, inland reconnaissance for aircrash victims, flood victims, lost hunters, forest fires, and levee breaks. Also described are the courier service between war plants and the transporting of Army cargo.

"Nowadays the CAP courier service combines a country-wide network of miniature airlines that have printed schedules and fly as much as 21,000 miles a day," says the report.

Another important feature is the Southern Liaison Patrol, which cooperates with both Mexican and U. S. governments to keep an eye on border movements, "covering more territory in a day than horse patrols can investigate in a week."

'Rick' Honored

Capt. E. V. "Eddie" Rickenbacker has been awarded the honorary degree of Doctor of Humane Letters in absentia by the University Foundation and American Theological Seminary of St. Augustine, Fla., and Wilmington, Del.

Sperry Unveils Its Secret Automatic Computing Sight

Untrained men become sharpshooting aerial gunners in three weeks through use of the Sperry Automatic Computing Sight, Dr. Hugh Willis, general sales manager of the Sperry Gyroscope Co., declared last fortnight at the premiere showing of the device at the annual convention of the Aviation Writers Association in New York City.

"A duck hunter learns that to hit a moving object he cannot sight directly on the target, because, if he does, the bird will be out of the line of fire by the time the bullet reaches its intended objective. Similarly, experience will teach the same man, operating a hand-held gun, how to estimate the speed of flight and wind velocities to make direct hits," Willis explained, "But now, we have an automatic computing sight that not only does all that calculating automatically and quickly, but does it with such exactitude that any enemy plane, caught properly in the sight, is as good as a dead duck. The effectiveness of other sights, lacking the automatic feature, depended largely on the inherent skill of the gunner, and required long periods of training."

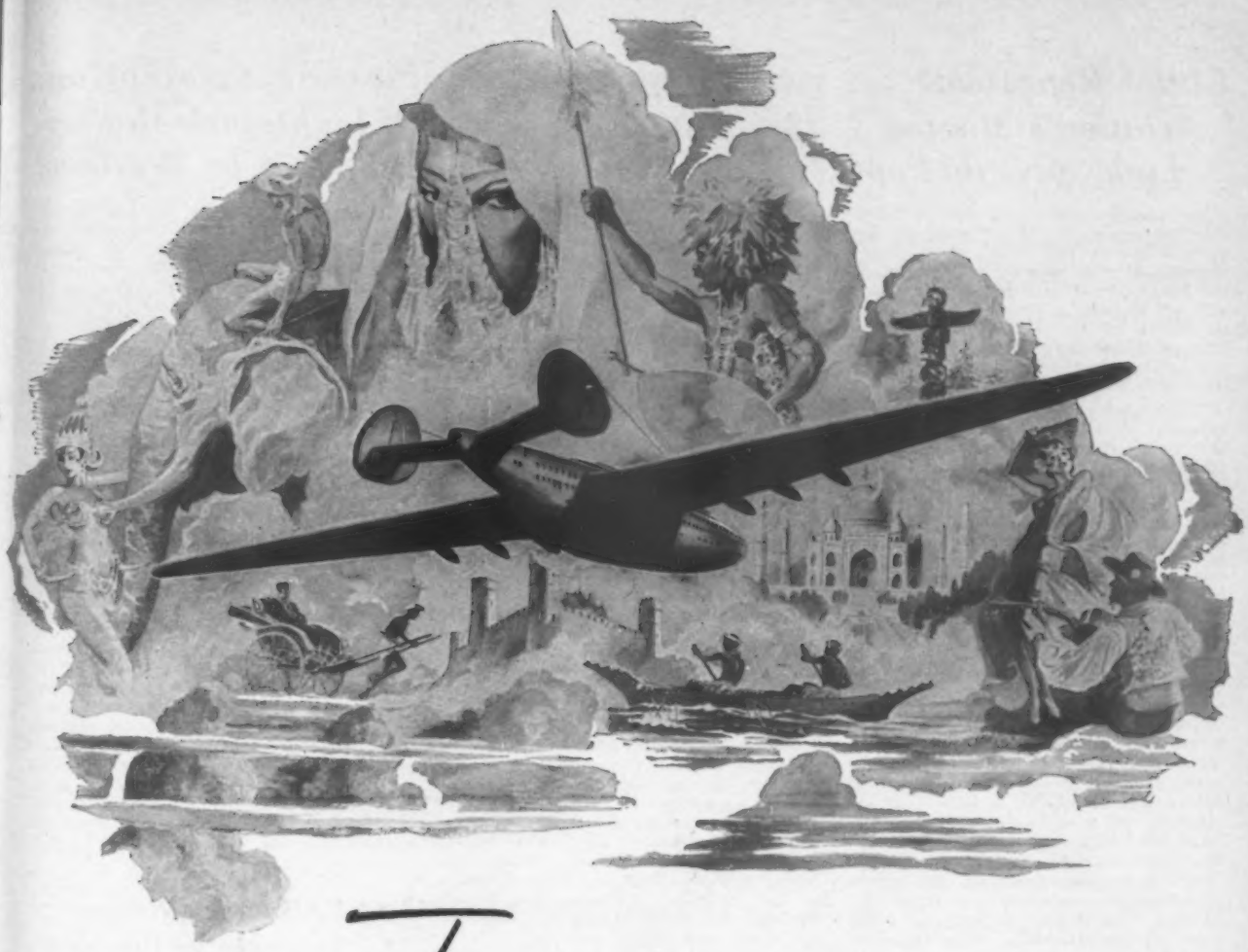
Sperry Sight: This new computing sight aims the 50-caliber guns on Fortresses and Liberators with deadly accuracy.

The Automatic Computing Sight, until the recent AWA convention one of the nation's most carefully guarded military secrets, is now standard equipment for all Flying Fortresses. The device is enclosed in a small black box, the size of a news camera, the weight of which is a military secret. It is now an integral part of the Sperry-designed upper local and lower ball turrets, and makes the .50 caliber machine guns effective at ranges considerably greater than that of enemy fighter planes.

"Our gunners have the same advantage that a long-armed boxer in the ring has over an opponent with a shorter reach," said Willis. "They can destroy Axis attackers before they can get close enough to hit back."

All the gunner has to do to put the sight in operation is to adjust his sight control to correspond to the dimensions of the attacker. Having studied airplane recognition, he knows, for example, that a certain plane has a wing spread of 30 feet. He twists the knob on his dial to "30", as if he were tuning in a radio.

Peering through a glass atop the sight, he must put the attacker between the two vertical lines of his finder, a line at the outermost tip of each wing. He does this by moving the turret in any direction he chooses and by operating a foot treadle which spreads the verticals to keep them on the wing tips of the enemy plane. This automatically keeps the computing sight "informed" of the range of the target. The sight does the rest.



Tomorrow

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Already on Martin drawing boards lie plans for giant airliners of 125 tons, capable of carrying scores of passengers, tons of freight, to the farthest of horizons. Other Martin ships of 250 tons and more are in the planning stage.

These Martin planes of tomorrow will be the product of no one man, one group or one department. They are coming from the effort of thousands of Martin workers. The man or woman who shows why a rivet should be moved, makes as definite a contribution as the engineer who designs a new wing.

Only by complete cooperation from each aircraft worker, all along the line, are great aircraft built. And it is this over-all refusal to be satisfied, this universal desire to produce something better, which makes American aviation feared in war and ready for peace.

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Glider Represents Aviation's Missing Link, Says du Pont

Air transport will be the world's "principal" transportation if the glider is developed to the full extent of its potentialities, in the opinion of Richard C. du Pont, special assistant to the Commanding General of the Army Air Forces in charge of the glider program. Du Pont addresed the annual convention of the Aviation Writers' Association in New York City June 27.

"There has been a missing link in aviation," he said. "The glider completes the chain. Heretofore, aircraft has been limited to flying between airports. Now, the whole world is our landing field. We can land 15-place craft in most any open country, striking where no other craft can strike. We can carry equipment far too heavy for paratroopers."

Du Pont revealed that the glider program, started a year ago, already has achieved its goal. He termed the spirit of glider men "equal to that shown by men in other branches of the service." He praised the modern gliders.

"They are performing as they were designed to perform," he said. "They have given us confidence."

Du Pont declared that, contrary to popular belief, the glider is not expendable. A great number of man hours are required for assembling and disassembling the craft, but they may be retrieved by plane, he added.

"We have only scratched the surface of the glider's tremendous potentialities," he said. "The glider will make air transport the transportation to be depended upon."

North Carolina Governor Names Aero Commission

Envisioning opportunities for the state to benefit "from the inevitable expansion of aviation" after the war, Gov. J. M. Broughton has appointed a state Aeronautics Commission with instructions to get North Carolina "set" for the anticipated expansion.

The governor pointed to the large increase in airfields in the state, and to the facilities now employed by armed forces, which later, he thinks, might be utilized for interstate and intrastate air traffic."

The new commission authorized by the last general assembly, is chairmanned by Roy Rowe, of Burgaw, a pilot-legislator now Squadron leader of the North Carolina Wing of the CAP.

The aviation industry is represented on the commission by Lee H. Smith, General Manager of Fairchild, Burlington, N. C., whose plant is now building two-engined Advanced Trainers for the Army. Other members are State Sen. E. C. Brooks, Jr., Ben E. Douglas, former OCD State Director, and William C. Olsen, public utilities engineer and CAP member.

The commission will make a survey of the state's aviation facilities, including schools and equipment, and make recommendations to the next session of the legislature.

Postwar Huddle: Three members of the Nebraska State Aeronautic Commission, a Nebraska congressman, and the executive vice president of the National Aeronautic Association are shown at N.A.A. headquarters during a recent conference in regard to Nebraska's postwar planning. Left to right—H. N. Jessen, chairman of the Nebraska commission; Congressman Karl Stefan; Harold P. Sutton and Donald D. Mapes, members of the commission; and W. P. Redding of N.A.A.

Aviation Writers Elect Wayne Parrish President

Wayne W. Parrish, editor of *American Aviation*, was elected president of the Aviation Writers' Association at its fifth annual convention in New York City, June 25-27. George E. Haddaway, publisher of *Southern Flight*, and Phillip Andrews, publisher of *Air News*, were named vice presidents, and Devon Francis, of Pan American Airways, was elected secretary. Clinton Macauley, editor of *Air Tech*, was named treasurer.

Parrish named seven regional governors as follows:

New England—Robert Sibley, *Boston Traveler*, Boston, Mass.; East Coast—Russell Newcomb, Simmonds Aerocessories Corp., New York City; Maryland, Virginia, West Virginia, District of Columbia—Alice Rogers Hager, *Skyways*, Washington, D. C.; Pennsylvania—Don Rose, *Philadelphia Record*, Philadelphia, Pa.; Piedmont—N. A. "Dick" Brown, *The American Pilot*, Charlotte, N. C.; Midwest—Michael Froelich, *Flying Magazine*, Chicago, Ill.; West Coast—Marvin Miles, *Los Angeles Times*, Los Angeles, Cal.

He created a military governorship and named Maj. Richard Kirshbaum, one of the founders of AWA and former aviation editor of the *Newark News*, to the post.

The following committee was appointed to clarify amendments to the AWA constitution and submit their proposals to a mail vote:

C. B. Colby, *Air Trails;* Jack Foster, *Aviation;* Larry Woodruff, *Newark News;* Phillip Andrews, *Air News;* Lester Ott, Grumman Engineering & Research Corp.; Capt. K. K. Hoyt, Civil Air Patrol; and Devon Francis, ex officio.

Koch Is Promoted

Lieu. Colonel A. S. Koch, former Deputy Administrator of Civil Aeronautics Administration, who specialized on air safety and regulations has recently been promoted to Lieut. Colonel.

Postwar Association Of Lightplane Makers Proposed by Wallace

The organization of an "Association of Personal Aircraft Manufacturers, Inc." to "encourage public acceptance of small aircraft in the postwar period," has been suggested by Dwane L. Wallace, president of Cessna Aircraft, in a letter to 15 major airplane and helicopter manufacturers.

He pointed out that governmental agencies charged with postwar planning "are concentrating on the commercial use of large aircraft" and hence "unable" to study the critical problems which must be solved if the general public is to accept small aircraft for personal use after the war.

He gives simplified navigational methods, the extension of landing facilities, availability of easily interpreted weather forecasts, fundamental policy changes and clarification of CAR, standardization of controls, etc., as examples of these problems.

Wallace emphasized to *American Aviation* that his suggestion was merely a feeler and that permanent policies of the proposed organization would be determined later by the whole group. Asked if Ford and General Motors would be invited to belong, he said, "There is a big job to be done and we'll welcome the help of any responsible manufacturer who has a bona-fide intention of making personal aircraft after the war."

CAA-CAB Appropriations Approved by President

A 1944 fiscal year Commerce Dept. appropriation bill, carrying $58,299,000 for the Civil Aeronautics Authority and $1,226,000 for the Civil Aeronautics Board, has been signed by the President.

The following recommendations by conferees on House-Senate differences in the two allocations were ultimately accepted:

1. A Senate amendment providing $1,842,000 for CAA to "establish air navigation facilities" was reduced to $1,689,000.

2. A Senate amendment providing $33,940,358 for civilian pilot training was reduced to $29,400,000.

3. Senate amendments providing CAB with $39,000 for safety regulation work and $25,000 for the Office of Transport Information were accepted.

4. A Senate amendment making unexpended CAA balances for "development of landing areas" available for expenditure during the coming fiscal year was accepted.

This reappropriation authorization for development of landing areas will make about $99,000,000 available to CAA for completion of 65 airports, Rep. Carl Stefan (R., Nebr.) reported to the House. This will take care of all but 28 of the 267 airports left uncompleted when WPA was liquidated. An estimate of $8,000,000 is now pending before the Bureau of the Budget for completion of the 28, he said. Of the 267, 103 have already been completed and 71 taken over by the Army and Navy.

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The Gibson Girl—automatic SOS transmitter—is destined to become the sweetheart of the AAF.

This lightweight, waterproof emergency equipment, which Bendix Aviation, Ltd., exclusively developed in collaboration with the Signal Corps, is saving the lives of pilots and crews who are adrift and in distress at sea.

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WHOSE LIFE WAS SAVED ON
AUGUST
IN THE PACIFIC OCEAN
BY A Gibson Girl
BY VIRTUE OF THIS ADVENTURE, NOW DULY CONFIRMED, THESE
PRESENTS DO HEREBY ACKNOWLEDGE HIM AS A MEMBER OF THE
Order of Gibson Girls
FOR THE ORDER
Palmer Nicholls
President, Bendix Aviation, Ltd.
GIVEN AT NORTH HOLLYWOOD, CALIFORNIA THIS 25th DAY OF MAY, 1943

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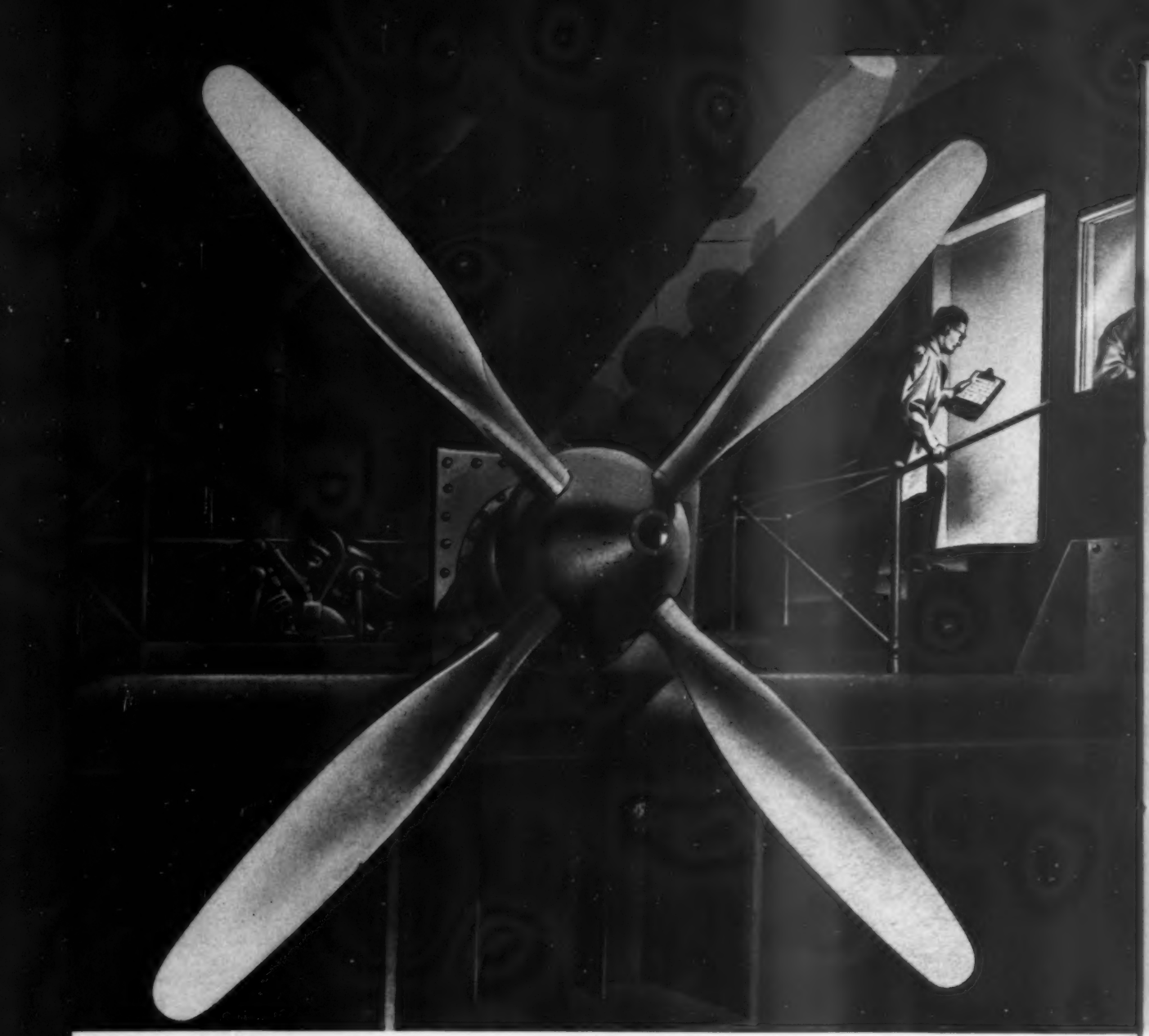

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IN a matter of seconds these four broad blades will be a whirling blur of steel. For hours this production propeller will roar through paces that are tougher than actual combat conditions. Engineers will watch it constantly. A battery of instruments will measure and record every performance factor throughout the run.

After passing all tests it's a true Aeroprop, ready to wear that name proudly in the service of our nation.

Graduates of this test house are chalking up performance records daily on the fighting fronts. Their strength—their lightness—their rapidity and precision of pitch control—their compact unit-construction, simplifying installation and shortening service operations—these are Aeroprop principles that pay off in successful missions, both in war and peace.

AEROPROP

AEROPRODUCTS DIVISION **GENERAL MOTORS** CORPORATION

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'Germany Can Be Bombed Out of the War'

British Analyst Says Quadrupling of Scale Can Wipe Out Industry

(EDITOR'S NOTE: This dispatch giving a comprehensive and considered mathematical analysis of the effect of large scale bombing upon the German industrial war effort was written by Peter Masefield, London Air Correspondent of the LONDON SUNDAY TIMES, a recognized authority on British flying, and gives one of the most enlightening studies of Allied airpower yet to appear in print.)

By PETER MASEFIELD

London Air Correspondent of the LONDON SUNDAY TIMES

IF THE present bomber offensive against Germany could be multiplied by four, her war production would be completely halted. That conclusion emerges from a deliberately conservative examination of the damage done by the big bombers. It can be set against another fact established with equal restraint by this study, namely that each bomber does four times as much damage to German production as it costs to make and operate. A more precise figure is that every big bomber in an operating life of 20 sorties deprives the enemy of the work of 1,200 men for two months.

Whatever may be the effect of bombing on morale, the harder facts of diminished production form the true test. Damage diverting and preventing work can compel Germany to stop fighting, no matter how efficient the Gestapo may be in damping public dissatisfaction and quelling popular opposition.

Despite the tremendous scale of attack —7,500 tons were dropped on Germany during the last week of May—there is, in general, little realization of the true meaning of the damage in terms of the German war effort and of the Allied expenditure needed to attain the results.

In fact, overall estimates are possible. Until now no such estimates have been made. A cold, mathematical study based on material collected during a period of months yields much interesting evidence. It suggests that the present scale of bombing is directly reducing the enemy's war effort by some 24%. This is lower than an official estimate published recently, and it errs deliberately on the conservative side. Calculations show that, in fact, one 2,000 ton raid causes damage equal to the whole work of at least 75,000 Germans for one month. The all-in cost of such a raid to the Allies is the work of some 18,500 men and women for the same period.

Modern warfare is founded on the man-hours available to a fighting nation. Everyone is in it. Germany today has an able-bodied working population of some 47 million out of a total of 78 million. It is divided up approximately thus: Services 9½ million, agriculture 11½ million; total of 21 million not affected by bombing. Essential civil industries 19 million, war production 7 million; total of 26 million directly affected by bombing.

Basically the man-power needed to make good the bomb damage to essential installations governs the effect that bombing can have on a nation's war effort. German bombing of Great Britain in 1940 did not achieve results because it was badly directed, and even more because there was still plenty of available man-power to deal with its effects.

Not so in Germany today. The Reich is stretched to the limit. All the resources are fully employed in the Services, producing food, in turning out weapons and munitions or in civilian activities essential to maintain the war effort. There is no margin for contingencies. Thus bombing presents the enemy with a sort of Hobson's choice. He can do three things: (a) divert men from war production to repair work; (b) take the necessary resources from the civilian activities; (c) leave the damage unrepaired.

Examining this more closely, we see that if the scale of bombing were sufficient to destroy or disorganize the whole work of the 7,000,000 men and women in direct war industry in Germany, then the whole supply of munitions to the German war machine would fail. Less obvious, but equally true, if an equivalent load of extra essential work is piled upon the 19 million in civil industries instead, then it must either be neglected (which means eventual and sudden disaster) or it must gradually eat into the whole work of the seven millions at present engaged in direct war production.

'Beaufighter' and 'Fish': Two RAF pilots are shown with one of British Coastal Command's 'Beaufighter' planes, armed with a "fin fish" under its fuselage. This plane, shown in flight in inset, has been making it hot for enemy shipping.

In either case this calculation sets the maximum which bombing must achieve to stop Germany fighting. It is the destruction, disorganization or absorption of the work of seven million Germans without which the other 71 million could not continue the war. It is in fact a total of 1,460 million man-hours per month. That is the target.

Four factors must be taken into account in assessing bomb damage. They are: (1) average bomb loads; (2) area devastated and manpower affected; (3) loss of output caused to the enemy; and (4) increased work imposed on the enemy.

On the first two points various published figures provide clues. In the first "1,000-bomber raid" on Cologne more than a year ago 1,043 bombers dropped 1,500 tons—an average of 1.44 tons of bombs per bomber. Since then the employment of a much bigger proportion of four-motor heavy bombers has been officially announced to have doubled the loads, and we know that many 8,000 lb. (3½ tons) bombs are carried. Hence, at a conservative estimate, allowing for all the weight of flares and incendiary containers which have to be carried at night, we can set the average bomb loads at 2½ British tons (5,600 lb.) at the very least.

On the subject of bomb damage we can draw on fairly definite facts. In Cologne 1,500 tons devastated 600 acres. At Essen a total of 10,000 tons over a period of months devastated 4,000 acres. We know, too, that the effect of a 4,000 lb. bomb is to lay flat buildings within a radius of 35 yards. Taking these facts, calculations show that one sortie (2½ tons) would devastate almost exactly one acre. Let us take half this figure so that our estimates are conservative.

A close study of results and target areas suggests that in night bombing the ratio of industrial to other property destroyed is about 33.3% to 66.6% (one to two). On this basis each sortie (2½ tons of bombs) can be estimated as destroying one-sixth of an acre of industrial property. Industrial records tell us that, on an average, factory areas are one-third covered by buildings and that one man needs 150 sq. ft. of factory space. From this we can calculate that 90 men are employed per industrial acre, and that in consequence each sortie—devastating one-sixth of an industrial acre—affects the work of 15 men.

All this boils down to the estimate that each heavy night bomber carries at least 2½ tons of bombs and with them devastates half an acre of target area which will involve the knocking out of the working space of 15 men as well as causing other non-industrial damage. The important point to determine is what this destruction costs to the enemy.

Four points must be considered here. They are: (a) loss of factory output by direct damage; (b) loss of work from other causes (casualties, transport dis-

(Turn to page 38)

Dickins Says Canada's Postwar Air Transport Must Be Global

"WE WANT the Canadian flag to go to the outermost points of the world . . .," so that Canada's already strong position in world trade and air transportation can be even further improved, asserted C. H. "Punch" Dickins, vice president and general manager, Canadian Pacific Air Lines, Ltd., Montreal, Que., in a recent address, "The Airplane and its Role in Post-War Reconstruction," delivered at the Air Conference in Toronto, under the auspices of the Aeronautical Institute of Canada.

Dickins

For Canada, the "whole social and economic picture" will be vastly changed, Dickins said, "because of the fact that almost any nation of the world will be within 12 to 16 hours' travel of Canada . . ." Practical steps which need to be considered to make an adequate postwar adjustment, he outlined as:

(1) Landing strip and airport construction by each community, as needs and development indicate.

(2) Building up of an extensive feeder network, so that passengers and cargo can be brought to the main trunk lines from every part of the Commonwealth.

(3) Surveying and prospecting by airplane.

(4) Permission of landing rights for aircraft of other countries whose routes require flight over any part of Canada.

Landing strip and airport construction Dickins feels has already gotten off to a good start, due to the British Commonwealth Air Training Plan. He stressed the importance of each community's need for doing this on its own, without waiting for Government stimulation or "handout." "(They) . . . will create by their work an air transportation system in Canada, regardless of who runs it, that will give employment to their own boys who are overseas, who will want to stay in the flying business when they come back, and it is shameful if we waste the talent that these boys have."

Development of a feeder network, because of Canada's distances and the large number of small communities as yet not well served by modern transportation, Dickins described as "a very important project." To supplement the basic trunk lines, high speed and serving large cities from coast to coast, feeder lines will enable air service to reach "two thirds of the population instead of one third and any point in Canada will be only an overnight trip from any other point."

Types of aircraft to handle the air mail, express, and other cargo in very small communities having no well-developed landing facilities, Dickins left to future development. But he referred to the helicopter as having "outstanding possibilities from the standpoint of local taxi service, short hauls and the transportation of mail from airports to post-office. Four of these, "on order since last year," Dickins said were now needed "on other very important jobs."

In surveying and prospecting Canada's north country, the helicopter would also have "great possibilities," Dickins said. Development of the country's great store of metals, minerals and other natural resources in not very accessible regions could be "done very quickly by airplane." Aerial photographic surveys of northern regions, to bring maps up-to-date, would also be a useful contribution the airplane could make.

Since Canada is already "on 14 of the major trunk line routes of the northern hemisphere," and "if we expect to develop our Canadian air transport we must permit rights of landing, using the facilities that are available to refuel and we must provide for the safety of international travel," Dickins emphasized, conceding that this was a "tremendous subject." ". . . we have no practical means that I know of of stopping any other nation from flying through our air," he said, but made clear that Canada's need for access to the markets of the rest of the world, to maintain and improve her trading position, underlined the advisability of cooperating with other countries in "innocent passage."

Dickins expressed great faith that "the airplane is going to be one of the greatest single instruments of reconstruction after the war," not only immediately in rebuilding of devastated areas, but in steadily increasing use of the air by "People who will say, 'I am going over there to see that man because I can get there in 10-12 hours.'"

To see to it that Canada does strengthen her position, Dickins reiterated that "We have got to make plans whereby we can develop and give . . . employment and a reasonable amount of economic security . . . We need have no fears of competition. We can provide a service which can be the equivalent, if not better, than any air transportation in the world today."

West Coast 'Associate Producers' Set Production Record on Glider

Just when and how troops carried by gliders will play their part in the great Allied invasion is a question left to be answered by strategy of the High Command.

West Coast manufacturers, who have formed a unique "Associate Producers" pool under the guidance of Otto W. Timm to speed production of the CG4A, only know that they are out to match a 10 to 15% production increase of the 15 man glider each month.

Thirteen months ago when the Army adopted Waco's design as its standard for troop-carrying gliders, Timm Aircraft secured the West's only glider contract, based on the associate producer program which barely six months later was in actual production.

Today the Timm glider plant, located in central Los Angeles, is the assembly point for 12 associate companies which produce component parts for the glider. Timm supplies all the raw material, the supervision of construction and even the timekeeping and bookkeeping in many of the plants while associates concentrate on production and manpower.

Weber Showcase and Fixture Co., which in peace time was one of the largest fixture companies in Los Angeles, produces the glider's giant wings, which top the Douglas DC-3 in span by several inches. Harlow Aircraft Co., Alhambra, is turning out the metal fuselage.

Utilization of Los Angeles furniture makers finds Angeles Furniture Co., one of the nation's largest, using more than 90% of its facilities in production of empennages, floor boards, folding seats, pilot seats, ramps, seat backs, door control cable guards and wings. Currently, Angeles is using its own capital to increase plant facilities 25%.

Los Angeles Period Furniture Co. is producing ribs and fuselage fairings; Advance Furniture Co., three-man seats; Gillespie Furniture Co., plywood angles for floors and fuselage, while Los Angeles Ladder Co. supplies the gliders' skids.

Main floor boards come from Kassen Co.; Metals Products Engineering handles control column assemblies. Essick Machinery Co. is responsible for fuselage frames and some fittings, and jigs are turned out by the Crown Craft Corp.

This associate producer program assures duplicate sources on all components. Its other advantages, in addition to the primary consideration of plants and workers available, have developed in later stages of actual production, such as greater control over raw materials and finished parts. It permits a spreading of materials which holds down stocks.

West Coast Product: This CG4A glider, which outspans the DC-3 by several inches, is being turned out by an "Associate Producers pool" in large quantities, under the direction of Timm Aircraft Co.

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WPB Names Aluminum Committee, Moves Al-Mag Section to Dayton

Aluminum continues to be the major obstacle to aircraft production and therefore continues to hold the spotlight at WPB. Action taken during the past two weeks indicates the new scheduling program will permit components to move more smoothly to the manufacturer. It also appears clear that industry suggestions, at first flatly turned down by WPB officials, have now been adopted in most cases.

Executive Vice-Chairman Charles E. Wilson announced on June 18 the appointment of an Aircraft Aluminum Products Control Committee to be responsible for increased production of aluminum forgings and extrusions and for "equitable distribution among aircraft manufacturers." Chairman of the new committee is Arthur H. Bunker, Director of WPB's Aluminum and Magnesium Division. Other members include Harold Boeschenstein, director of the Controlled Materials Plan; Brigadier General F. M. Hopkins, War Department; Captain Don Royce, Bureau of Aeronautics of the Navy; T. P. Wright, Director of the Aircraft Resources Control Office; Frank Russell, National Aircraft War Production Council; and Hugh Wilder, Aluminum Company of America, consultant.

The committee was set up as a result of meetings on the materials problem held in Washington in May at the instigation of the National Aircraft War Production Council and at Wrght Field, Dayton, O. It will determine the policy on distribution and scheduling of aluminum products for aircraft, paying particular attention, according to Wilson, "to the needs of the greatly accelerated production of heavy bombers, already far ahead of the goal for this date as laid down two years ago by President Roosevelt."

Washington authorities report that "pieces and parts" scheduling of aluminum extrusions and forgings, one of the chief recommendations emanating from the two meetings last month, will be in operation early in July. The difficulties involved in this meticulous scheduling job demanded further integration of the work of WPB's Aluminum Section and the Aircraft Scheduling Unit at Dayton. To this end, the Aluminum Forgings Section of Al-Mag which is located in WPB's regional office at Cleveland will move to Dayton about July 1. Col. E. W. Rawlings will represent ARCO there to complete the cooperation necessary for maintaining production schedules of aluminum forgings in the next six months.

The problem of obtaining detailed requirements and inventories from the industry, of screening critical requirements and alloting forgings, will continue as the responsibility of ASU. Al-Mag's Forging Section will determine requirements and make allotments of forging stock; it will issue production directives, determine hammer capacities, record shipments and mill schedules and appoint and instruct resident representatives for all forging plants.

Problems which arise from the inequality of supply and demand on both a long and short range basis and the necessity to decide between competing preferences will probably be cleared by joint action of the Forging Section and ASU. However, matters which involve major determinations or adjustments of policy will be referred to a committee composed of a chairman appointed by Al-Mag and a second member appointed by ARCO (with a non-voting secretary from ASU). The decisions of this committee will be conclusive, although they may be appealed to a higher authority, presumably Wilson.

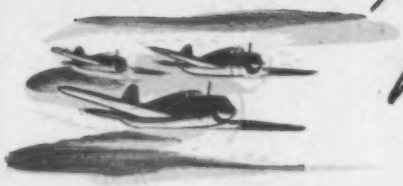
Al-Mag will place representatives in the major forging shops as required and ASU will make available personnel for periodic trips to the shops as the chairman of the forging committee may request. While the Forging Section is responsible for maintaining these representatives, ASU may make direct inquiries from them without clearing through the Forging Section.

Arrangements have also been made giving ASU full access to the Forge Shops in making allocations so that the most intelligent possible utilization may be made of the overall capacities allocated by the Requirements Committee of WPB. This is to be accomplished as required by joint meeting of ASU, the Forging Section and the suppliers.

The appointment of the Production Control Committee, establishment of close liaison between the Aluminum Forging Section of WPB, ASU and the Army, the establishment of aluminum warehouses at strategic points and the adoption of "pieces and parts" scheduling of aluminum extrusions and forgings are concrete indications that WPB officials are adopting industry suggestions for resolving the situation.

—Official OWI Photograph.

Guess Where: Only the Air Transport Command knows where this modern, well equipped base is situated. It is part of the ATC's worldwide network which, alone, is larger than all transport organizations, civilian and military, in existence throughout the world before the war. The ATC's development of airways, communications, and airports will be available for civilian air transport needs after the war. This picture, one of the few depicting ATC bases to be released, was made public with the recent Office of War Information report covering all phases of American air transport at the present time.



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a Dependable Guide for Flying Armor...

Sketched in the Pioneer Compass Laboratory by Norman Kaplan

...Pioneer ingenuity provides the solution

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Before the outbreak of war, Pioneer engineers had conducted extensive research on the general problem of remote indicating instruments. And because of these years of development work, the "PIONEER MAGNESYN" Remote Indicating Compass was soon perfected to meet the urgent need of the day.

In this system, the Transmitter containing the sensitive element is located where magnetic disturbances are at a minimum. From one to three Indicators connected to it by electrical wiring are installed at points in the plane where compass indications are needed.

The "MAGNESYN" Remote Indicating Compass is typical of the advanced engineering of "PIONEER" Aircraft Instruments. It is an important member of "The Invisible Crew" of precision equipment which 25 Bendix plants from coast to coast are speeding to our fighting crews on world battle fronts.

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PIONEER INSTRUMENT DIVISION

Here's How the WTS Program at Bloomsburg, Pa., Works

Nestled in the Appalachian Mountains at Bloomsburg, Pa., is a small, grass-covered airport. Nearby are the ivy-covered halls of a college campus.

Two years ago, the Bloomsburg Municipal Airport and the Bloomsburg State Teachers' College were tiny factors in a nation at peace, but today they are vital to America's war effort. They are joined together in a pilot training project which, according to War Training Service officials, is typical of WTS schools throughout the country.

A reporter for *American Aviation* spent a day at Bloomsburg to see at first hand how the WTS program works. He observed that the project is built on a four-cornered foundation:

1. Use of the college campus, including well-equipped classrooms, dormitories, dining halls, and a modern athletic plant.
2. Complete possession of the local airport, now owned and operated by the Aircraft Services Consolidated School with 54 training planes, 30 instructors, modern shops, and the latest radio equipment.
3. A curriculum prescribed by the Civil Aeronautics Administration.
4. Administration, discipline, and indoctrination by the Navy. (Many such schools are Army-administered.)

The 110 men currently at Bloomsburg range from 22 to 33 years of age. Fifty per cent are married, and their wives live in the town. Nearly all are from states east of the Mississippi River.

Most of them left schools and offices to enroll for pilot training, but some were employed on farms and in factories. A few had good jobs. One of the younger men was an industrial engineer for a large corporation—and played amateur baseball on the side. When the United States entered the war, he gave up baseball in favor of flying. Under the old Civilian Pilot Training program, he became so proficient that he decided to give flying his full time. He now looks forward to combat.

Such trainees, young enough for the air services but who lack the academic qualifications required of air cadets, are quickly making up their deficiencies so that they may yet be called upon for active duty. Others, too old for the air services, hope to become instructors.

All are exposed to the following courses: Fundamentals of Military Service (a Navy indoctrination course), Flight Instruction Methods, Cross-country Plotting (a radio orientation course), Civil Air Regulations, Meteorology, Navigation, Mathematics, Physics, General Servicing and Operation of Aircraft, Study of Aircraft Engines, Theory of Flight, Aircraft Recognition, and Communication.

Under the Aircraft Recognition course, the trainee is required to recognize each of 70 different airplanes in 1/25 of a second. Under Communication, he must become equally proficient at radio, flag, and blinker signaling.

Navy discipline requires that the trainee arise each day at 5:30 A.M. He drills, or limbers up with calisthenics, until 7:00, when breakfast is called. A half hour later, he is on his way to airfield or classroom, but not before he has readied his bed for 10 o'clock inspection. He flies and goes to class on alternate mornings and afternoons. Lights go out at 10 P.M.

The Navy maintains a staff of six officers at Bloomsburg. Under the officer-in-charge are executive, personnel, medical, operations, and ground school officers.

The airport is owned and operated by Howard Ailor, who was known to the aircraft industry for many years as Waco distributor at Roosevelt Field, New York. He employs 210 workers, 40 of them women. With the exception of the 30 instructors, who teach both flying and ground courses, employes may work any of three eight-hour shifts. Airplane servicing, radio maintenance and repair, welding, and "X-raying" of vital engine parts (through use of the *Zyglo Magnaflux*), never ceases.

To save time in his shop, Ailor has invented several devices such as Rube Goldberg might assemble. An air hose dangles from a long diagonal arm which can be swung to any corner of the hangar. A heavy derrick, shaped like a vertical horseshoe, can be rolled from plane to plane to facilitate removal and installation of motors.

Ailor's resourcefulness also is in evidence on the field. His loud speaker system is a converted sound truck, formerly used to advertise merchandise on the streets of a town in Texas. At night he removes the generator from this device, attaches it to a portable "steam blower," and blows the grease and grime from the landing gears of the planes. This, he says, compensates for his having no storage hangars.

'This Makes It Tick': This is probably what the instructor is telling his three pupils in this picture taken at a War Training Service school. Such scenes are commonplace at the Bloomsburg, Pa., airport, where a Navy WTS program is underway.

Of the 54 planes in use at Bloomsburg, 32 are Waco UPFs; eight are Fairchilds; seven are Piper Cruisers; four are Waco AGEs, and three are Stinsons. The Fairchilds, Pipers, and Waco AGEs are used in the cross-country phase of training.

The trainee flies 576 hours during six months' at Bloomsburg. Less than 10 per cent of those enrolled are "washed out."

CAB Plans Extensive Changes in Methods Of Issuing Plane Mechanics Certificates

Proposed changes of Part 24, "Mechanics Certificates" of the Civil Air Regulations, are now being circulated by the Civil Aeronautics Board for comment before July 1. These changes, if effected, will be initiated in an attempt to bring mechanics ratings up-to-date with the rapidly expanding and increasingly - complicated aviation industry.

CAB officials point out the necessity for these changes now that the "condition no longer exists wherein all persons in aviation know practically all other persons in aviation. Technical improvements," they add "have made it impossible for an aircraft or engine mechanic to be competent to perform all mechanic functions on all aircraft or all engines."

In the early days, there was only one license for pilots because practically all aircraft were identical or at least had very similar features. Today pilots' licenses range from those applicable to Cubs and other lightplanes, to those given for ability to fly huge transport and bomber planes which bear little resemblance to light models. Mechanics ratings, however, have remained throughout at the early unspecialized stage with no material changes since the requirements were first laid down under the Air Commerce Act of 1926.

CAB does not feel that new regulations will act detrimentally to the majority of older mechanics but may in many cases extend them additional privileges. Their main concern is with the large numbers of new mechanics applying for certification, who are needed in private and non-scheduled divisions of the industry. Under these regulations, they may be certified for the type of work for which they are qualified rather than on the basis of being able to do all of the work on all types of aircraft, engines and appliances.

Under section 24.10, a third class of certificates has been added to the classifications aircraft technician and aircraft engine technician, called "Aviation specialists technician," to permit the certification of specialists under the requirements of the Civil Aeronautics Act of 1938.

CAB also proposes to rate each of these classifications according to the particular type of work for which they are qualified, by training and experience. For aircraft technicians the service ratings divide into: (1) maintenance and service; (2) repair and overhaul of composite aircraft structures; (3) repair and overhaul of metal aircraft structures. CAB maintains these divisions are necessary to take

(Turn to page 48)

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Lack of CAB Policy Criticized by CAL

Asserting that the Civil Aeronautics Board's policy with respect to many fundamental principles "seems to be chaotic," Continental Air Lines has demanded that the Board reconsider its decision granting Braniff Airways a Denver-Amarillo route.

The same decision denied CAL's applications for Pueblo-Amarillo and San Antonio-El Paso.

"In the present instance the Board's opinion is composed almost entirely of a recital of economic characteristics, postal receipts, population data and mileage tables, with very few pages being devoted to conclusions, most of which are at total variance with the facts. As a result of its opinion in this case the disclosed policy of the Board seems to be chaotic with respect to many fundamental principles," said the petition, signed by Terrell C. Drinkwater, CAL executive vice president.

"These include: the question of competing services between relatively small termini; the need for strengthening the smaller air carriers; the attitude with regard to issuance of temporary certificates not requested by the War Dept. and the far reaching ramifications which will result from an unrealistic conception of temporary or limited certificates; the further deferment of applications three or four years after the applications are filed and hearing has been held; the matter of economy of operation; what importance if any is attached to sec. 404 (a) and 1002(i) of the Act in connection with through service; and other equally serious and important fields."

The airlines, the petition charged, are "entitled to be furnished with definite disclosures of principle and policy which govern this Board with regard to the fundamental issues in proceedings of this character. The Board has a duty to provide the public with guideposts of principles to be applied in the future development of air transportation."

W. Frank Persons Takes Post with Ryan Company

W. Frank Persons, former head of the United States Employment Service and recently Director of Industrial Relations for Consolidated Vultee Aircraft, has joined the Ryan Aeronautical Co. as head of its newly-organized industrial relations department.

Persons has been a nationally-known figure in social work and human relations for 30 years. In 1917 he was Director General of Civilian Relief for the American Red Cross; in 1919 he went to Europe to help organize the international League of Red Cross Societies; in 1921 he became Vice-Chairman of the American Red Cross. Later he served as industrial relations director for several public utilities, became secretary of a national trade association, and was one of the leaders in the crusade against loan sharks which resulted in the enactment of legislation regulating small loans. In 1933 he went to Washington as assistant director of the Civilian Conservation Corps, and later became head of the USES.

Victoria on 'Main Line': The crew and a distinguished passenger, R. W. Mayhew, member of the Canadian parliament, are shown after landing in the first Trans-Canada Air Lines plane to complete a scheduled run from Vancouver to Victoria, B. C. Trans-Canada now extends from St. John's Newfoundland, to Victoria, a distance of 3,911 miles.

Kellett Aircraft Resumes Old Name

The Kellett Autogiro Corp. has reassumed the name of Kellett Aircraft Corp., which was the original company name when it was founded in 1929. The name change was approved at a special stockholders meeting held in Philadelphia on June 10, and became effective June 15.

Return to the original company name became advisable because of the larger scope of aviation activities in which the company is currently engaged, it was stated. Kellett is producing several types of rotary wing aircraft and manufacturing, as a subcontractor, important parts for military combat airplanes.

The Kellett company is the oldest rotary wing aircraft manufacturing company in the world. In addition to building the first wingless aircraft in America, Kellett designed and manufactured the first fleet of military rotary wing aircraft as well as the autogiro used in daily delivery of mail from the post office roof, Philadelphia, to Camden Airport.

Masefield Analyzes Bombing of Reich

(Continued from page 31)

location, residential damage, etc.); (c) cost of essential repairs to factories; (d) cost of essential repairs to other property. All these should be estimated in man-hours.

From a knowledge of German methods we may assume that eight of the 15 men displaced per sortie will be re-employed elsewhere immediately and the other seven will be used on repairs. We know too that certain output will be lost through transport dislocation, etc. Checking these assumptions against observed results, we get the following figures of man-hours of work lost to the enemy per bombing sortie (one raid by one bomber).

	Man-hours
(a) loss of factory output	4,375
(b) loss of other work	6,562
(c) essential repairs to factories	3,875
(d) essential repairs to other property	6,675
Total loss of man-hours to enemy per bomber sortie	21,487

Taking this in round figures we can assume that the total loss of output per sortie is some 10,000 man-hours and the total extra work caused per sortie is a further 10,000 man-hours—a combined total of 20,000 man-hours of destruction to the enemy for each 2½ tons of bombs dropped; 8,000 man-hours per ton. These figures are certainly under-estimates.

Similar detailed calculation for the cost of each bomber sortie to the Allies sets it at 5,000 man-hours, which is erring on the high side. The gain per sortie is thus 15,000 man-hours—a ratio of four to one in favor of the bomber. A 2,000 ton raid by 800 bombers may be estimated as causing 16 million man-hours of damage to Germany and costing four million man-hours to the Allies. In an operating life of 20 sorties in, say, two months, each heavy bomber robs the enemy of the work of 1,200 men. These represent average results of night bombing. In really good raids, which are an increasing proportion of the total, the results are certainly higher.

Obviously the key to the whole subject is what total effort has to be diverted by the enemy to the essential repairs and the replacement of material destroyed by the present scale of Allied bombing. The scale of attack now is not less than 15,000 tons per month—and going up. The total quantity of work sterilized by this scale of attack—equivalent to 120 million man-hours per month—represents 8.2 % of the target figure of 1,460 million man-hours of German output per month. In other words, so long as this scale of attack is maintained the enemy has to lay off some 575,000 men permanently from war production or essential civil industries to fight the direct economic effects of the bomber offensive.

In practice, the effect of present bombing is more complete than this suggests. A close examination of industrial make-up suggests that when the scale of destruction reaches about one-third of the total effort the destruction of that third has such wide repercussion as to cripple the other 66%. This would reduce the target figure to around 500 million man-hours of destruction and represent the present night bombing effort as achieving about 24 % of the figure required for sterilization of all German industrial effort.

There are obviously many other factors as well. The bomber force ties down in defensive activities not less than 2,000,000 able-bodied Germans who would otherwise be freed for aggressive use.

Nor have we taken into account the effects of the American day bombing effort.

There is no other way of scoring so great success at so small a price. Four times the present effort will virtually eliminate Germany's industrial war effort and lay the "Fortress of Europe" wide open to final mopping up by Allied land forces. This is the position, the objective—and the coming weight of air attack.

AA Traffic Meeting: Pictured during American Airlines Western Regional traffic meeting in Los Angeles are: front row, left to right, W. Donald Young, traffic manager, Tucson; A. R. Bone, Jr., Western traffic manager, Los Angeles; Willis G. Lipscomb, General Traffic Manager, New York City. Back row, left to right: George R. Corey, Jr., Traffic manager, San Francisco; Charles F. Weaver, Western Region supt. of Reservations and Ticket Offices, Los Angeles; William Sample, Jr., Traffic manager, San Diego; John A. Smith, Western Regional supt. air mail, express and freight, Los Angeles; Nelson K. Milliken, District traffic manager, Los Angeles; James S. Robb, Traffic manager, Phoenix.

TWA Profit Equal to 1942 Quarter Deficit

Transcontinental and Western Air realized profits of $313,327 in 1943's first quarter, contrasted with deficit of $310,651 in the same period of 1942.

A 23.4% increase in operating revenues and a 3% decrease in operating expenses helped to make this possible. Revenues were $3,842,159, against $3,113,474, and expenses $3,325,903 against $3,429,780.

Efficient utilization of equipment was reflected in the 16.6% increase in revenue passenger miles, 46,884,457, compared to 40,206,638, but "The favorable results . . . are directly the result of substantially increased demand for all classes of air transportation," president Jack Frye said.

Mail revenue amounted to $903,221 compared with $807,352, but mail pound miles were 2,990,963,490, contrasted with 1,535,287,066, a 94.8% gain. Express pound miles gained 71.1% or 1,318,731 compared to 770,527.

Kentucky-Tennessee Line Wants Helicopter Routes

Kentucky-Tennessee Airlines, Lexington, Ky., filed an application with the Civil Aeronautics Board last fortnight for scheduled transportation of persons, property, and mail with helicopters "or planes of similar design."

The following routes were proposed:

1. Between Ashland, Ky., and Memphis, Tenn., via Maysville, Lexington, Frankfort, Louisville, Owensboro, Henderson, Madisonville, Paducah, Mayfield, Union City, Dyersburg, and Jackson, Tenn. Total mileage: 570.

2. From Frankfort, Ky., to Lexington, via Louisville, Elizabethtown, Glasgow, Bowling Green, Hopkinsville, Clarksville, Nashville, Columbia, Shelbyville, Chattanooga, Cleveland, Athens, Maryville, Knoxville, Morristown, Greenville, Johnson City, Kingsport, Harlen, Hayard and Winchester, Ky. Total mileage: 800.

3. Same as 2 except in reverse direction.

Company is partnership composed of Gilmore N. Nunn, Lexington, Ky., and J. Lindsay Nunn, of Amarillo, Texas and Lexington, Ky.

PCA Stock Approved for Stock Exchange Trading

The common stock of Pennsylvania-Central Airlines has been approved for listing by the New York Stock Exchange and trading will begin July 6, it is announced today by R. G. Lochiel, treasurer of PCA.

Total of 481,790 shares of the common stock have been listed by the Stock Exchange and the ticker symbol will be PCA. The airline stock has been listed on the New York Curb Exchange since 1938. The company's recently issued annual report reflected its growth from a pioneer operation of the early 1920's which spanned but 127 miles, to its present schedule of over 3,500 miles.

Pan American Establishes Central Personnel Office

To expedite employment for all branches of the Pan American World Airways System in the area, a central personnel procurement office has been opened in Miami, Florida.

Applications for work for a number of divisions and branches of the company, including the system's general accounting office, which has its headquarters in Miami, will be received at the new offices.

To supervise establishment of the new offices, Robert F. Green, Manager of the New York office of Pan American, is now on assignment in Miami.

Trial Examiners' Office Is Set Up Under Ed Leasure

The Civil Aeronautics Board on July 5 created the Office of Trial Examiners to serve under direct jurisdiction of the Board. C. Edward Leasure, for three years chief of the CAB proceedings division of the economic bureau, has been named Chief Examiner.

The staff of the new office will act as examiners in the hearing of all applications for new routes, foreign air carrier permits, mail rate cases, and all other cases involving aviation economic proceedings before the CAB. One immediate result will be the expediting of all new route cases.

Highly regarded by the air transport industry for his impartiality, judgment and vigor, Leasure joined the Civil Aeronautics Authority from the ICC in 1938. He has had 21 years of experience in public utility regulation. His new post elevates him substantially in the CAB organization.

American Export Back On Its Summer Route

American Export Airlines has resumed scheduled air service on the North Atlantic short summer route between New York, United Kingdom and Africa.

John E. Slater, executive vice president, announced that Capt. Edward A. Stewart had commanded the season's first flight. Only properly certified civil aircraft are used on the New York-Foynes-Africa route, it was emphasized, since this service is completely apart from the company's military cargo operations.

At a ceremony which celebrated the line's first birthday in trans-Atlantic operations, Slater reviewed progress to date. He noted that company personnel has multiplied "more than four times" during the past year, and that "one million miles of over-water flying schedules" have been completed.

Three records for trans-Atlantic flights by civil aircraft were claimed for American Export: (1) Fastest eastbound crossing of 16 hours, eight minutes, between New York and the United Kingdom; (2) Fastest westbound flight, United Kingdom-New York, with time of 19 hours, 54 minutes against prevailing head winds, and (3) Fastest four continent flight on the long winter route, with time of 74 hours, 3 minutes.

Bazley Succeeds du Pont At All American's Helm

Maj. Halsey R. Bazley, vice president in charge of operations, has replaced Richard C. du Pont as president of All American Aviation, Inc., Wilmington, Del.

Bazley has been with All American since August, 1939, when he began as operations manager. Because of his duties as special assistant to the Commanding General, U. S. AAF, du Pont resigned from the cargo line.

Donald A. Duff Joins Continental Air Lines

Donald A. Duff has been appointed executive assistant of Continental Air Lines, Inc., with headquarters in Denver. His duties will be "in part concerned with the airline's postwar plans, which now embrace several concrete projects for expansion of air service for the West," Continental's announcement said.

For the past two years Duff has been general traffic and sales manager for Northeast Airlines in Boston, and was previously associated with Pennsylvania - Central Airlines for 10 years. While with PCA he had "first-hand experience in the development of new territories as the company's routes expanded." Just before leaving that firm, Duff had advanced to division traffic manager and representative in Washington, D. C. During the three and one-half years he spent there, he "developed a very wide range of acquaintance throughout the industry, the Civil Aeronautics Administration and other government agencies."

Duff

According to CAL president Terrell C. Drinkwater, creation of the new position of executive assistant was "in line with Continental's current expansion program, which embraces not only the company's commercial operations, but its various war activities." Duff will serve as assistant to Drinkwater and other officers of the company.

Besides his experience in Washington, Duff while with PCA was also district traffic manager at Pittsburgh, manager of the Harrisburg, Pa., airport, division traffic manager at the Detroit-Milwaukee division, and assistant general traffic manager in charge of sales promotion.

Duff is a graduate of the University of Pittsburgh and has done post graduate study in business administration.

American Airlines Office Damaged Heavily by Fire

American Airlines suffered a serious fire June 25 on the 17th floor of their new executive offices in the Pershing Square Building, 100 East 42nd Street, New York. The 18th and 19th floors occupied by American were not damaged, but the 16th floor offices suffered damage from smoke and water.

The fire was discovered about 7 a.m. by pedestrians who saw flames shooting from the windows. It apparently had spread rapidly. The entire executive traffic, research, reservations and publicity offices were gutted, but the executive suites for officers on the south side of the floor were only damaged by smoke and water. Quite a few file cabinets were consumed by the flames. Within a few days American reopened the 17th floor offices on the 4th floor and telephone service was resumed.

Actions of the Civil Aeronautics Board

Order No. 2261, *July* 1, 1942: Authorized Pan American Airways to inaugurate non-stop service on or about July 1, 1942 between San Juan, Puerto Rico and St. Lucia, British West Indies, subject to any amendment of certificate.

Order No. 2262, *May* 6, 1943: Approved agreement between Pan American Airways and Railway Express Agency, Inc., concerning issuance by REA of Airway bills.

Order No. 2263, *May* 8, 1943: Rescinded Order No. 2010, issued Nov. 3, 1942, insofar as it requires the filing by American Airlines of monthly reports of traffic carried to and from San Diego, Cal.

Order No. 2265, *May* 10, 1943: Awarded to Braniff Airways route between Amarillo and Denver via Pueblo and Colorado Springs, and directed that Braniff's flights into Denver must originate or terminate at Ft. Worth-Dallas, or points south thereof, because of Continental Air Lines' routes. Also, denied Braniff's application for the Amarillo-San Antonio route; denied Braniff's and TWA's applications for Amarillo-Houston; deferred application of Essair, Inc., pending further study of feeder-pickup lines; denied Braniff service to Fort Stockton and Alpine; dismissed, in connection with Braniff and TWA, investigation of possible service to Brownwood and in the case of Essair and decided that Braniff may be permitted to file application for temporary service between San Antonio and Amarillo.

Order No. 2266, *May* 11, 1943: In the matter of applications of Samuel F. Pryor, Jr., Robert G. Ferguson, Charles F. Adams, Harold M. Bixby, Amos Hiatt, John O. Merckling, John W. Hanes, Howard B. Dean, Pan American Airways and Uraba, Medellin and Central Airways for approval of interlocking relationships, portions regarding application of Pan Am for approval of control of Aeronaves de Mexico, S. A. are no longer withheld from public disclosure.

Order No. 2268, *May* 10, 1943: Granted Transcontinental and Western Air permission to include Los Angeles as an intermediate point on route 37, with restriction that flights via Los Angeles must originate or terminate at Albuquerque or points east. Also, deferred decision on Western Air Lines application for Los Angeles-El Centro; authorized United Air Lines to make stops at Stockton, Modesto, Merced and Visalia between San Francisco and Los Angeles; granted Western Air Lines a stop at San Bernardino on its San Diego-Los Angeles route, but denied UAL's application for Los Angeles-San Francisco and for Los Angeles-San Francisco-Sacramento, all subject to requirements of national defense.

Order No. 2271, *May* 10, 1943: Directed Pan American Airways to show cause, effective June 1, why the Board should not make final the conclusions which set a base rate for transporting mail of 31.67c per airplane mile, for base poundage of 300 lbs. of mail, when average daily mileage does not exceed 10,060 miles, plus an excess poundage rate of 0.05 of a cent per airplane mile for each pound, or fraction thereof, of mail in excess of the base poundage.

Order No. 2272, *May* 15, 1943: Denied, in the interests of national defense, motion of Mid-Continent Airlines for immediate hearing in its application for certificate.

Order No. 2273, *May* 10, 1943: Granted Delta Air Corp. a route from New Orleans to Shreveport via Baton Rouge and Alexandria; granted Eastern Air Lines a stop at Lake Charles, La. on route 5; denied applications of National, Braniff and Chicago and Southern for New Orleans-Ft. Worth-Dallas.

Order No. 2277, *May* 26, 1943: In the matter of request of United Air Lines for approval of acquisition of control by UAL of Lineas Aereas Mineras, S. A., granted permission to American Airlines to intervene.

Order No. 2278, *May* 26, 1943: Further amended Order No. 2096, dated Jan. 4, 1943, regarding Eastern Air Lines' suspension of service temporarily at Baton Rouge, La., by authorization to continue this suspension until July 14, 1943.

Order No. 2279, *May* 26, 1943: Made certain revisions, by Amendment No. 1, to CAB Form 2780-W, Monthly Report of War Contract Operations for Domestic Air Carriers.

Order No. 2289, *May* 31, 1943: Temporarily exempted Arthur G. Woodley, doing business as Woodley Airways, from provisions of section 401 (a) of the Act (1938), insofar as provisions would interfere with Woodley's operations between Anchorage and Juneau, Alaska, via the intermediate points Cordova, Alaska, and Yakutat, Alaska.

Order No. 2290, *May* 31, 1943: Authorized Braniff Airways to resume scheduled service at Waco, Texas, through the use of Blackland Airfield, effective June 1, 1943.

Order No. 2291, *May* 10, 1943: Authorized American Airlines to serve San Diego on Route 4, but without permission to engage in local air transportation between San Diego and Los Angeles, thus enabling company to provide through service from San Diego to Phoenix and points east; also, authorized Transcontinental and Western Air to serve Grand Canyon and Phoenix on Route 2, with the provision that these stops shall not be served by the same flight; authorized Western Air Lines to include Palm Springs and El Centro as intermediate points on Route 13. All these must wait for needs of national defense before inaugurating any of these services. At the same time, Board denied WAL's application for San Diego-Phoenix; denied TWA permission to serve Grand Canyon on Route 38, and denied WAL's application for seasonal (Dec.-April) operation between Los Angeles and El Centro.

Order No. 2292, *May* 10, 1943: Granted United Air Lines route into Washington from Toledo, granted Transcontinental and Western Air route from Dayton, O., to Washington via intermediate points of Columbus, O., and Wheeling, W. Va. and Eastern Air Lines route from Louisville, Ky., via Frankfort-Lexington, Ky., and Charleston, W. Va. At the same time, Board denied TWA's application for service between St. Louis and Washington via Evansville, Frankfort-Lexington, Ky., and also between St. Louis and Dayton via Evansville, Frankfort-Lexington, Ky., and Cincinnati, O.

Order No. 2296, *June* 9, 1943: Authorized Western Air Lines to suspend service on its Route 52 for period June 5, 1943 through June 10, 1943, because of necessity for repairs to aircraft used on that route and because of lack of reserve aircraft.

Order No. 2298, *June* 10, 1943: Permitted Arthur G. Woodley, doing business as Woodley Airways, to suspend service until Nov. 15, 1943 at Pedro Bay, Igiugig, Koggiung, Egegik, Ugashik, Pilot Point, Clark's Point, Kanakanak, Ekwok, Tyonek, Medfra and Takotna, Alaska, because of limited summer business and equipment requirements for summer operations.

Order No. 2299, *June* 10, 1943: Approved the holding by Charles A. Rheinstrom of positions as vice president and director of American Airlines and as director in Air Cargo, Inc.

Order No. 2300, *June* 10, 1943: Likewise, approved the holding by Paul H. Brattain of positions as vice president and director of Eastern Air Lines and director of Air Cargo, Inc.

Order No. 2302, *June* 10, 1943: In the cases of American Airlines, Eastern Airlines, Transcontinental and Western Air, United Air Lines and Western Air Lines, dismissed investigations into rates and charges on these lines, because of revised tariffs coming into effect on July 15, 1943, affecting both passenger and express charges.

CAB Stays Order Granting TWA West Coast Route

PLANS of Transcontinental & Western Air, Inc., to operate through service to San Francisco via Los Angeles were disrupted last fortnight when the Civil Aeronautics Board stayed its order of May 10, granting TWA such a route, and ordered a reargument and reconsideration of the petition of Western Air Lines, Inc., to enter Los Angeles. This was the first time the CAB had ordered a reargument and a stay on a new route decision.

TWA had been granted permission to include Los Angeles as an intermediate point on Route 37 (Winslow-San Francisco), with the restriction that flights via Los Angeles must originate or terminate at Albuquerque or points east. Western's petition "for rehearing, reargument, and reconsideration" charged that the Board's decision favoring TWA was based on testimony taken in May, 1941.

"The essential facts underlying the Board's decision have changed since the time of the hearing, as the result of which its determination rests upon a record not truly reflective of present and future conditions," it said. "While the Board's decision with reference to the issues about to be discussed was erroneous upon the facts of record, it is plain that subsequent changes of conditions render the decision invalid as of the present date and that, were the order based upon a record of the facts which now exist, it would not be lawful or sustained by the evidence."

The petition pointed out that the essential basis of the Board's denial of Western's application for the Los Angeles-San Francisco route, and the granting of the route to TWA, was that there was inadequate traffic from intermediate points to sustain the through operation of TWA over Route 37 to and from San Francisco, and that it was necessary, consequently, that it serve Los Angeles in order to get its traffic support.

"The Board concluded that 'it is quite clear from the facts of record that the operation (of TWA) to San Francisco under present authorization has never achieved an economically sound basis and, as the result, a satisfactory service to the public has not been provided'," said the petition. "The Board attributed this failure to 'the lack of intermediate points capable of providing sufficient supporting local traffic' which, it said, 'precludes TWA from providing through schedules which will serve only San Francisco, omitting Los Angeles, over its presently authorized routes except at considerable loss.'

"This is a conclusion made on the basis of a record completed in May, 1941, and as to conditions then existing. As a consequence, the Board decided that, although Western could better serve the local traffic between Los Angeles and San Francisco (its volume being 90% of the local traffic), the advantages to be gained by permitting TWA's service to the through traffic would outweigh the benefits to be obtained by Western's superior service to local traffic. Therefore, the Board granted TWA's petition."

Western charged that the Board's conclusions were predicated on the fact that in May, 1941 there was not adequate through traffic to support the transcontinental operation and that it was necessary to permit TWA to serve the local traffic to support its operation of the through route, but that in the interim between the time of the Los Angeles-San Francisco hearing, and the time of the decision, there was a change in the essential facts and conditions with reference to the passenger, mail, and freight traffic moving to and from San Francisco over the routes of TWA, and the future volume of such traffic.

"In no previous period has there been such an acceleration of the evolution of the air transport business," the petition continued. "This change is on account of the rapid development of the business, due, among other things, to the development of improved and more economical planes, the improvement in operating technique, the radically different attitude of the public, produced by the war, towards air transport, and the definite assurance of a great cargo business and a greatly increased passenger traffic. As a consequence, the traffic conditions on the routes now in question are now so essentially changed that the facts in the record made at the hearing over two years ago are obsolete."

Western claims there is now no scarcity of traffic to support TWA's operation of Route 37 to San Francisco and it is now unnecessary that TWA serve Los Angeles as an intermediate point in order to secure traffic support for the operation of a through route into San Francisco.

"Consequently," said the petition, "any conclusions to the contrary derived by the Board from the record, as it was made over two years ago, are erroneous because made without regard for the present facts with reference to such traffic.

Pan Am Starts Route

Joining of New Orleans with Guatemala City and Balboa, Canal Zone by air was recently accomplished when Pan American Airways inaugurated regularly scheduled service between those points. Stratoclippers are used on this route. Three times weekly service is scheduled, with departure from New Orleans on Sundays, Tuesdays and Fridays, and from Balboa, on Mondays, Thursdays and Saturdays.

Speas Wins ATA Contest

Dixon Speas, assistant to vice president-engineering William Littlewood of American Airlines, Jackson Heights, L. I., N. Y., has won $250 for his flight plan analyzer and altitude selector, in a contest sponsored by the Air Transport Association of America, Washington, D. C. This instrument was said to be able to record mechanically flight winds at all altitudes, and to indicate flight time to the pilot, as well as fuel consumption under different flight conditions.

PCA Names Specialist At Washington Airport

Dr. L. G. Lederer has been appointed acting chief of the medical department of Pennsylvania-Central Airlines it is announced by J. H. Carmichael, PCA vice president in charge of operations. He will direct the modern "clinic" which serves the nearly 2,000 PCA employes and Army personnel at the company's general offices at the Washington National Airport.

Dr. Lederer

In recent years he has specialized in the physiological problems of aviation medicine. He has been director of student health of the Chicago City Colleges where he also lectured on the biological sciences, was medical officer for the U. S. Food and Drug Administration.

UAL Purchase of LAMSA Given Approval; Cannot Extend Beyond Mexican Territory

Approval of United Air Lines' application to acquire controlling interest in the Mexican airline, Lineas Aeras Mineras, S. A., has been recommended in a report by an examiner for the Civil Aeronautics Board.

United filed its application to purchase 75 per cent of the capital stock of LAMSA, operating 1700 route miles through the center of Mexico, early last March.

In his report, Examiner J. Francis Reilly concluded that such acquisition by United would not be inconsistent with the public interest provided it was consummated in accordance with certain terms and conditions. Among these were that United would not permit LAMSA to extend its operation beyond the territorial limits of Mexico without prior approval of the CAB and that United would not alter or permit to be altered the percentage of voting stock held in LAMSA without prior approval of the Board.

United's proposed acquisition calls chiefly for the company's contribution to LAMSA in technical advice, assistance and loans for purchase of more modern equipment. Management of the two companies would be separate.

The Mexican company operates from Nogales and Juarez on the Mexican-U. S. boundary to Mexico City, and from Torreon to Mazatlan. Another route, from San Luis Protosi to Nuevo Laredo, is not at present being operated. The company was founded in 1931 by Gordon Barry, an American flyer, who has operated it continuously since that time.

Airline Personnel

Munroe

Mallory

Judd

Backman

In the Services

Norval B. Rader, on leave of absence as eastern sales manager of United Air Lines, is now Capt. N. B. Rader of the U. S. Marines, and the former **Mary Lyman** of UAL's Los Angeles traffic office, later Mrs. Rader, is now Ensign Mary Rader of the WAVES.

Traffic and Sales

R. H. Burck, Jr. has been appointed Southern Division traffic manager for Braniff Airways, and **Tom N. Taylor** as Braniff's dtm in the Kansas City District.

Mason Mallory, former Los Angeles traffic manager for Western Air Lines, has been made city traffic manager in Las Vegas. **Roy Backman,** formerly assistant to the city traffic manager in Los Angeles, is now city traffic manager in Long Beach. **Ray Thompson** is Western's dtm at the new and enlarged office at 330 Broadway, San Diego.

Charles A. Tehan, former dtm for Eastern Air Lines at Louisville, is now dtm in Washington, and **"Lou" Sheetz** has been transferred from dtm at Washington to Louisville, where he will supervise the new St. Louis-Evansville-Louisville-Washington run.

William Munroe has been promoted from reservation agent for Trans-Canada Air Lines in New York to station manager, assigned to La Guardia Field, succeeding **Irving Thomas,** who has been transferred to the Malton Airport in Toronto as station manager.

Charles Robbins, formerly in American Airlines' Los Angeles ticket office and reservations department, has been appointed traffic representative in San Francisco. At the Chicago office, **Vernon K. Harvey** has been appointed assistant reservations supervisor and **Robert A. Meyer** as chief control message supervisor.

Changes at Pan American Airways include: **Jerome V. Roscoe,** formerly assistant to vice president and general traffic manager **Victor E. Chenea,** has become acting assistant division manager of the Alaska Division; **J. E. "Joe" Crossen** will resume his post as manager of the Alaska Division after a temporary assignment in the Atlantic Division; **L. C. Reynolds,** formerly on a temporary assignment as acting manager of the Alaska Division, has been reassigned as executive assistant to vice president **Harold M. Bixby** in New York, and **O. J. Studeman** has been promoted from acting operations manager, to full operations manager of the Alaska Division.

Operations

At American Export Airlines **John E. Slater** has returned to his duties as executive vice president. **Capt. Berger Bergensen** heads the flight operations section, and **Thomas Rodenbaugh** the station section, two new sections in the operations department. **Frank M. Coombes** becomes superintendent of service, **William Scouler** chief purser, and **Adele Jenkins,** chief stewardess.

Dean Miller and **John Morse,** assistant airport managers for Pan American Airways in Natal, Brazil, have been transferred as junior airport managers to Whitehorse and Anchorage, respectively.

Miscellaneous

Almo O. Bearden, for 10 years section superintendent of Pan American's base at Port of Spain, Trinidad, has returned to the United States for reassignment.

Willett M. Gorham, Chicago attorney, has joined Transcontinental and Western Air as assistant to **Otis F. Bryan,** vice president in charge of war projects.

Jack Adams, formerly director of California Shipbuilding Corp. news bureau, has been named Western Regional Publicity Manager for American Airlines, with headquarters in Los Angeles, succeeding **Stewart Faulkner.**

Paul G. Hoffman, president of Studebaker Corp., has been elected a director of United Air Lines.

Leon B. Judd, comptroller of Delta Air Lines, has been elected a director of the company.

Edward D. Nocholson is named by United Air Lines as an executive assistant in Denver, Col., to represent the general interests of the company in the intermountain area.

Delta Counsel Calls Airline War Agency in Mail Rate Motion

Argument on Delta Air Corporation's motion to vacate a Civil Aeronautics Board order that the company show cause why it should not be paid a mail rate of .3 mill per pound mile, revealed that the company's operations are so primarily devoted to services directly connected with the prosecution of the war that it is virtually a "war service agency of the government."

"There is no present need, either economic or political, for the revaluation of mail pay rates presently fixed by the Board for Delta Air Corp., insofar as the wartime operating revenues of the company are concerned," declared Ernest V. Moore, counsel for the company. "This is because of the overall effect of the 1942 Revenue Act upon Delta's entire income, which act was passed by Congress largely for the purpose of curing the inflationary tendencies of war earnings and the necessary and abnormal dislocations to the peacetime economy."

Moore declared that the airline operations of Delta during the current fiscal year will yield a smaller return on the total invested capital of the company, after payment of Federal income taxes, than the average annual return on total invested capital of the company during the period from 1934 to 1942.

"The proposed action of the Board (in the show-cause proceeding) will further reduce the return on invested capital of Delta for the current fiscal year," the counsel said.

"The restrictive regulation of Delta's mail pay rates proposed by the Board in this proceeding, and the consequent curtailment of operating revenues as well as net return on investment, as shown by the evidence submitted, will certainly limit, if not totally eliminate, any provision Delta may be able to make from present income after taxes, for meeting the postwar needs for re-equipment and restoration of adequate public service by Delta as an air carrier," Moore added.

Northwest Airlines Has Continued Traffic Gains

Continued traffic gains in air mail, express and revenue passengers were experienced by Northwest Airlines, Inc., St. Paul, Minn., in May.

During that month, 7,207 revenue passengers used NWA planes, compared with 7,080 in April, a gain of 8.2%. For the first five months of the year, the line transported 36,804 revenue passengers. and flew 18,290,403 revenue passenger miles.

In air mail, an all-time high of 375,805 lbs. was carried in May, 99,000 lbs. more than the figure for May of 1942, and 35,000 more than that for the highest month in that year. Airmail pound miles, 308,-748,396, exceed by 1,000,000 those accumulated in May of 1942.

A total of 114,163 lbs. of air express was hauled in May, more than 10,000 lbs. over the total for May of 1942. Express pound miles operated increased to 82,-007,845 from the 80,547,846 of May, 1942.

Propellers
OVER THE MEDITERRANEAN
The blue Mediterranean, key to the military situation in southern Europe and gateway to the East, is rapidly coming under Allied domination, thanks in large part to superior air power. In these operations Liberators and Flying Fortresses are at the spearhead of the attack—all equipped with Hamilton Standard Hydromatic propellers.
HAMILTON STANDARD PROPELLERS
East Hartford, Connecticut
ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION

1 Reynolds Aluminum and Reynolds finished parts start here, in this bauxite mine near Little Rock, Ark. Reynolds is now mining more bauxite than was mined in the entire country before the war.

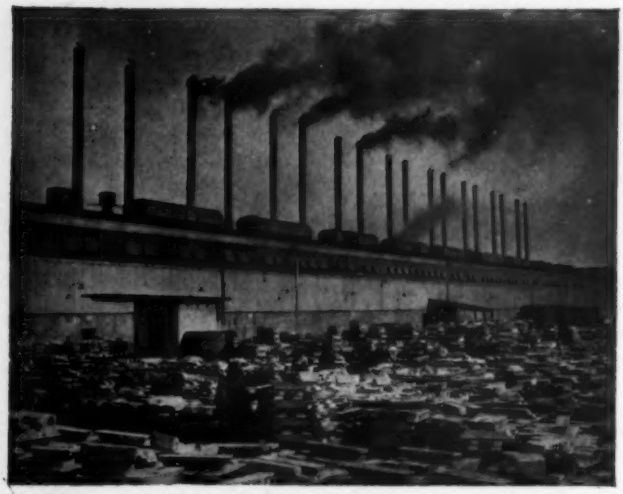
2 From the mines in Arkansas, the bauxite is shipped to the Reynolds Listerhill, Ala., plant. There, it is carried up conveyor belts, crushed and mixed with caustic soda.

From Reynolds Mines

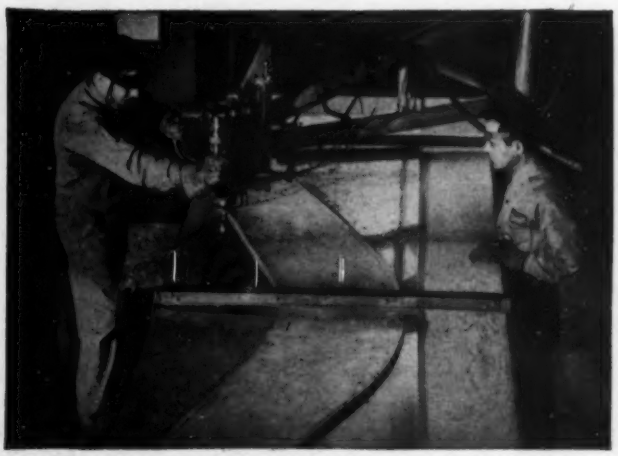
Out of American bauxite, Reynolds is processing high-grade aluminum and fabricating finished aircraft parts because Reynolds — with 20 years' experience rolling light metal — had the vision to foresee the need and the courage to back up its vision with action.

Back in 1939, Reynolds started mining "lean" domestic bauxite to free the U. S. from foreign sources of supply. Now Reynolds is mining 36% more domestic ore than was mined in this country before the war.

Risking everything, Reynolds built tremendous new factories to process the ore. One plant in Alabama was conjured out of a pasture in five months and 28 days — the only plant in the United States where bauxite goes in one end and fabricated aluminum for aircraft comes out the other. Now Reynolds is turning out more aluminum than France and England combined in 1939. And this aluminum averages 99.6 percent pure or better.



5 Aluminum ingots, shown stacked in a Listerhill storage yard, are fed into remelt furnaces along with various alloying metals. The resulting alloys are cast into huge billets for rolling.



7 Aircraft manufacturers provide Reynolds with blueprints, templates and specifications. Reynolds does the rest — routs, shears, blanks, heat-treats, anodizes, chromidizes and paints the parts. Here's one of the Reynolds routing units in operation.

8 Reynolds finished parts, flowing direct from the aluminum source, not only save skilled manpower and valuable space at aircraft factories, but completely eliminate scrap handling and expense. This 200-ton press is stamping out window frames for a fighting plane.

3 The bauxite is carried through many technical operations in this huge aluminum plant at Listerhill, Ala. It emerges as a fine white powder — aluminum oxide or alumina.

4 The alumina is dissolved with cryolite in special carbon lined tanks where oxygen is separated from the aluminum by electric current. Aluminum is poured into pig molds to form ingots.

to Finished Parts!

To top all this, Reynolds has established a complete aircraft parts division, offering these advantages:

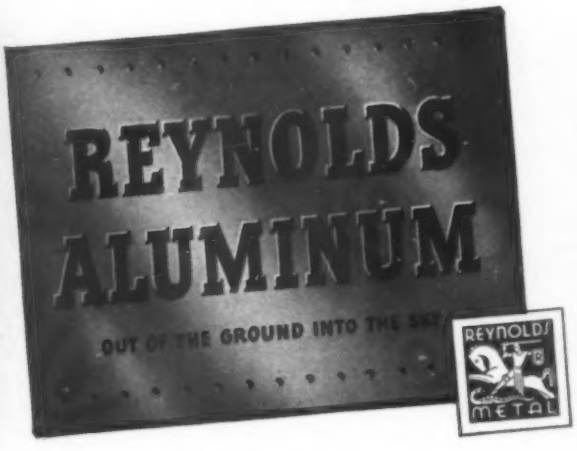
Saves Scrap Handling. Shipments of aluminum parts to manufacturers are *net*. The usual 30% scrap loss *stays at the mill*. This metal is put back into production at once. Scrap handling and shipping are eliminated.

Saves Manpower. Thousands of trained Reynolds workers and 250,000 sq. ft. of additional floor space are devoted to finished parts, relieving labor in aircraft factories.

Saves Space. Reynolds parts release aircraft plant space formerly tied up fabricating parts and handling scrap.

Take advantage of this new, complete service. Let Reynolds fabricate your aircraft parts *at the aluminum source*.

REYNOLDS METALS COMPANY
General Offices, Richmond, Va. • Parts Division, Louisville, Ky.
LEADERSHIP IN ALUMINUM



NO SCRAP...
You Buy Parts Ready for Assembly

6 After proper pre-heating, the alloy billet or slab passes through large rolls under tremendous pressure. It emerges as a broad ribbon of gleaming metal.

9 Finished parts pass rigid Army and Navy inspection at the Reynolds plants to meet exact specifications as to chemical and physical properties, size, hardness and surface. Then, they are shipped to aircraft manufacturers ready for assembly.

ON A WING AND A PRAYER !

Pugnacious pilots acclaim this Consolidated Liberator — for here's a "toughie" that can take an awful shellacking—yet still maul the target — and bring 'em home. We offer with modest pride, that no small part in this fine ship's performance is due to A. A. C. Hydraulic Units. Exacting specifications called for by our "Blueprints of Safety" are rigidly adhered to in the manufacture of these and other A.A.C. products . . . . . .

AAC

Products

Grace Charges PAA Petition 'Thwarts' Growth of Panagra

W. R. Grace & Company filed a reply to Pan American Airways' answer and petition for an investigation concerning Panagra's application for a route terminal in the United States last fortnight charging that PAA has persistently attempted to "thwart" the development of Panagra.

The Grace reply was termed "the culmination of efforts on the part of Grace, covering many years, to permit Panagra to develop as an integral air carrier and to assume the independent responsibilities which its position in South America requires."

"Pan American has persistently attempted to thwart the development of Panagra in order to protect from competition, routes in which it has more than a 50 per cent interest," the reply continued.

"Pan American, in its own operations, has always recognized the vital importance of bringing its lines through to terminals in the United States and not interposing connecting services—even its own. Its Atlantic, Pacific, Western and Eastern divisions all come to terminals in the U. S. Several years ago it arranged that its Mexican subsidiary come through to Los Angeles.

"At the very moment when Pan American is opposing Panagra's coming to a U. S. terminal, it has caused to be filed with this Board applications by its 100% owned foreign subsidiaries, Panair do Brasil and Compania Nacional Cubana de Aviacion, S. A., to extend their routes to U. S. terminals. Since the present proceedings were begun, various foreign companies have filed applications with the Board to extend their routes to the U. S., including an application by Taca to extend to Miami a service operating from the Canal Zone via Central America. Eastern Airlines and National Airlines have filed applications to extend their domestic routes from U. S. terminals to the Canal Zone. Pan American itself has been granted a certificate from New Orleans to Guatemala where it connects with its route to the Canal Zone via Central America.

"Unless Panagra is permitted to extend its route to the U. S. in this proceeding, it may later on find that so many others have already entered the field that its extension is impracticable despite its urgent desirability from the standpoint of the public interest in a through route. Unless relief is granted Panagra in this case there is grave danger that a situation may arise where this great international service will be the only one operating in South America desiring a U. S. terminal which is denied this facility and where for lack of this facility it will be placed at a ruinous disadvantage in the struggle for the air which will certainly follow the termination of the war."

In its reply, W. R. Grace & Co. lists 48 statements and a number of exhibits to substantiate its contention that a sound public policy dictates that Panagra should be authorized and required to extend its route to a terminal in the U. S.

'Wings' Guests: At the fifth annual "Wings Over the Nation" dinner in Long Beach, Cal., are, l to r: G. R. Tulloch, assistant manager, Douglas's Long Beach plant; G. A. Huggins, manager, Douglas, Long Beach; Thomas Wolfe, vp of traffic, Western Air Lines, and Lt. Col. Allan A. Barrie, Air Transport Command.

AA Proposes

(Continued from page 19)

One of the company's applications is for the consolidation of American's transcontinental route. This route, which extends from coast to coast—from Boston to Washington, then west to Los Angeles—is known as the Southern Transcontinental, is now comprised of three different route numbers. Route 23 is the portion of the transcontinental serving the territory between Dallas-Fort Worth, Washington and New York. Route 4 serves the territory between Dallas-Fort Worth, Tex., and Los Angeles. Route 18 serves New England between Boston and New York. The company has also requested authority to embrace on its combined transcontinental route the cities of Lubbock and Wichita Falls, Tex., Oklahoma City and Tulso, Okla., and Fort Smith, Ark. It has also requested that the cities of Paducah and Louisville, Ky., and Evansville, Ind., be included on the transcontinental route between Washington and Memphis.

American has also applied for extensions on both ends of its route 22. This route now extends from Cleveland. O. to Nashville, Tenn.. via Columbus, Dayton, Cincinnati and Louisville, and it is proposed to extend to the north from Columbus to Toledo and Detroit, and the south from Nashville to New Orleans, via Meridian, Miss. This will provide through, direct service, for the first time, between Detroit, Toledo, Cleveland, Columbus and New Orleans, and between those cities and all intermediate cities on the route. New Orleans is now an important international gateway to Mexico, Central and South America.

Another application is for a route from Detroit, Mich. and Cleveland, O. to St. Louis, Mo., via Toledo, O.; Fort Wayne, Muncie-Anderson and Indianapolis, Ind.; and Springfield, Ill. American already serves Detroit, Cleveland, Indianapolis, and St. Louis. The new proposed route will provide direct, through service between Detroit, Cleveland, Fort Wayne, Muncie-Anderson and Indianapolis, St. Louis, the Southwest and Los Angeles, for the first time. It will also provide Springfield with its only direct, eastern air outlet.

The company's route 25 now operates between Washington and Chicago, and the CAB has been requested to extend that route from Washington to New York, making it possible for the company to improve its service between Washington, Cincinnati, Indianapolis, Chicago and Washington, Baltimore, Philadelphia and New York. It has also been requested that Pittsburgh be embraced on route 25 so that the company can directly connect that city by through plane service with Cincinnati and the South and Southwest and with such cities as Philadelphia and New York.

Another application is for a route from Detroit to Miami, Fla.; via Toledo and Columbus, O.; Charleston, W. Va., Roanoke, Va.; Winston-Salem and Charlotte, N. C.; Columbia, S. C.; Savannah, Ga.; and Jacksonville, Fla. This will provide the first direct air service between Toledo, Cleveland, Columbus and the Southeast and Florida.

The company has also applied for extensions of its routes into the Northwest —one from Chicago to Milwaukee, the other from Chicago to Minneapolis-St. Paul via Rockford, Ill.; Dubuque, Ia.; and Rochester, Minnesota. This will provide direct, through one plane service for the first time between these cities and the Southwest and virtually all the East. Rockford and Dubuque do not now have air service of any kind.

The company's new applications also include the request that its route 7 between New York and Chicago and route 21 between Cleveland and Boston be combined. making possible a wide improvement in service between cities included on these routes. Request has also been made to extend route 7, which is the company's New York-Chicago operation, to embrace Philadelphia and Allentown-Bethlehem, Pa., making through service possible between Philadelphia, Allentown-Bethlehem and upstate New York, and between those cities and Buffalo, Toronto, Detroit and Chicago.

In addition to these applications, the company has requested permission to place on its existing routes a number of other cities, including Joplin, Mo., on its route between Chicago and Dallas-Fort Worth; Binghamton and Elmira, New York, between Buffalo and New York; and Wilmington, Delaware, and Richmond, Va., on its transcontinental route between Boston, New York, Washington and Los Angeles. The application to embrace Pittsburgh on its route 25 would also provide direct service between Wilmington and Pittsburgh, Chicago and the West.

The company made applications only recently to increase the number of cities it serves in New England. Applications are already on file to embrace Waterbury-Meriden-Bristol-New Britian and New London, Conn.; Worcester, Fall River-New Bedford, Attleboro-Brockton-Taunton, Mass., on the company's routes between Boston and New York.

The company also has on file an application to include Akron, O., on its route between Cleveland and Nashville, Tenn. and an application to embrace San Antonio, Tex., on its routes between El Paso and Mexico City and between Dallas-Fort Worth and Mexico City.

Capacity of Postwar Planes Should be Limited—Froesch

FIFTY or 60 passenger capacity should be the limit for domestic operations in postwar planes, Charles Froesch, chief engineer, Eastern Air Lines, Inc., declared before a recent meeting of the Metropolitan section of the Society of Automotive Engineers in New York City.

This maximum will likely be set, Froesch said, because the "highest permissible system speed and frequency of schedule are more important from the traffic viewpoint than capacity." Loading and unloading time required for larger planes would likewise be a disadvantage trafficwise, he added.

But, for long range and trans-oceanic service, larger aircraft "could embody double or even triple decks in multiples of 50 or even 100 passengers each in order to keep the CG movement within a satisfactory range," Froesch believes.

In any case, according to Froesch, "the first postwar decade will be the most critical for the air transport industry. Upon our correct interpretation of the economic factors created by the war, as affecting scheduled air transportation, our factual analysis of the problems we face and their judicious, technical and practical solution, will depend either success and accelerated growth or retarded development."

Accordingly, he said, such analysis leads to the belief that there will be five "distinct" types of airplanes in schedule air transport, servicing these general classifications:

1. *Feeder Service.* For this there would be an airplane of small capacity designed to stop every 20 or 30 miles to pick passengers, mail and express for transportation between small communities or transfer to main line points. Helicopters could be substituted for the usual type of plane. Some government subsidies would probably be necessary due to the small volume of traffic in these zones.

2. *Local Schedule.* Here would be needed a larger airplane designed to stop every 100 to 200 miles depending upon area served and also to connect with the feeder service.

3. *Limited Stops Service.* Technical standards here would be higher. An airplane of excellent speed performance and approximately twice as large as the local schedule aircraft would be required. This plane would operate in and out of modern airports, and speed and maximum payload would be more important than the short takeoff and landing characteristics which would be essential assets of the planes in services 1 and 2. Convertibility from dayplane to sleeper might be desired for some services.

4. *Long Range Operation.* For this kind of service, a plane designed for 1,000 miles plus between stops would be needed. It would have large cargo capacity and provide day and night de luxe passenger accommodations. Size of plane would depend on size of power plants available, but probably not more than four or perhaps six motors would be practicable.

5. *Cargo Service.* In this category an aircraft designed as simply as possible, able to withstand much abuse, would be desirable. It would be "a flying boxcar" both in appearance and size.

Suggested specifications are appended in the accompanying table, as prepared by Froesch. Since "Fuel costs represent today approximately 12% of all direct flight costs," substitution of a Diesel engine in the long range aircraft is almost essential because low operating costs are necessary if such a plane is to compete with express rates of 10 to 12c per ton mile, including pickup and delivery costs.

As airplanes grow in size, Froesch believes that "there must be a point when the Diesel type of power plant becomes definitely more economical just as it is found with watercrafts. The future will decide where this demarcation line is to be found."

Maintenance time and operations must be reduced, especially engine changes, Froesch further believes. "This ought to be done in minutes rather than hours when it is considered that this operation is carried out, roughly, 20 to 30 times during the usual life of the airplane." And further, "power plants should be self-contained from the firewall forward in order to permit duplication of flight check on the test stand after engine overhaul to eliminate the present expensive procedure of first bench testing the engine, then checking the installation on the airplane, and, finally, flight checking it."

UAL Hartford-Boston Hearing Set for Sept. 8

Civil Aeronautics Board has set Sept. 8 as the date for a hearing on the application of United Air Lines to extend its transcontinental line from New York to Hartford and Boston. United is one of several companies applying for a certificate for service between these cities.

The application to be heard is the second of United's which seeks entry into New England, another having been filed nearly three years ago for through service from Boston and Hartford to Cleveland, there joining United's transcontinental route to provide a direct east-west transcontinental service.

The Civil Aeronautics Board's decision on United's original application, now followed by the second application New York-Hartford-Boston, is awaited.

PROPOSED CHARACTERISTICS FOR FUTURE TRANSPORT AIRPLANES

	Airplane No. 1 Feeder	Airplane No. 2 Local	Airplane No. 3 Limited	Airplane No. 4 Long Range	Airplane No. 5 Cargo
A) General Specifications					
a) Gross weight, lb.	12,000	30,000-35,000	40,000-55,000	75,000+*	50,000-60,000
b) Useful load, lb.	4,000	10,000-11,500	13,000-18,000	25,000+	25,000-30,000
c) Passenger capacity, day night	8 to 10	25 to 30	32 to 40 16 to 20	60+ 30+	— —
d) Cargo capacity, cu. ft.	100	400 to 450	600 to 750	1,000+	2,000 cu. ft.
e) Number of engines	2	2	2 or 4	4**	2
f) Power plant	Gasoline	Gasoline	Gasoline	Gas. or Diesel	Diesel
g) Power loading, lb/hp	10	12	12 to 14	12 to 14	14
h) Wing arrangement	High Wing	Low Wing	Low Wing	Low Wing	High Wing
i) Flight crew, number	2 Pilots	2 Pilots 1 Cabin Att.	2 Pilots 1 Radio Op. 1 or 2 Cabin Att.	2 Pilots 1 Radio Op. 1 Navig.*** 2 Cabin Att.	2 Pilots 1 Cargo Handler
B) Performance					
a) Cruising speed 50 to 55% of rated HP	150 to 160	200 to 220	240 to 250	250+	200+
b) Stalling speed (flaps in approach position)	50	80	80	90	80
c) Takeoff distance to clear 50' obstacle	1,000'	2,500'	3,000 to 3,500'	4,000 to 5,000'	2,500'
d) Range plus 3/4 hr. reserve, miles	300	750	1500	2,000+	1,500
e) Single engine ceiling	Meet CAA Terrain Requirements				

* Max. gross weight depending on available engines. Might be flying boats in larger sizes.
** Possible use of power plant installations from airplanes No. 2 or 3.
*** May also act as flight engineer.

American Airlines' station managers: Northern Region managers recently attended a New York meeting conducted by R. M. Burrows, Northern Superintendent of Station Operations for American Airlines. Pictured above left to right, front row: L. G. Riley, SM—Syracuse; C. A. Luigs, SM—Detroit; B. J. Hugger, SM—Cincinnati; R. M. Burrows, Northern Superintendent of Station Operations; I. A. Williams, Station Field Supervisor based in New York; E. J. Rogers, Station Field Supervisor based in Chicago; H. D. Silliman, SM—Washington.

Second row—left to right: J. W. Durham, SM—Knoxville; G. V. Zeller, SM—Huntington; E. J. Wood, SM—Louisville; J. A. McMillan, SM—Tri-Cities; H. L. McCuns, SM—Dayton; W. Farrell, SM—Windsor, Ontario.

Third row—left to right: J. A. Clod, SM—Baltimore; C. T. Rutledge, Supervisor of Station Procedures; R. M. Rex, Chief Investigator—Investigating Office; W. A. Davis, SM—Erie; S. P. Fay, SM—Pittsburgh; C. A. Davenport; SM—South Bend, Indiana; R. W. McDonald, SM—Toronto; G. H. Whittlesey, SM—Chicago.

Fourth row—left to right: H. F. Palmer, Assistant Director of Station Operations; W. B. Marshall, SM—Big Spring; E. M. Cozzens, SM—New York; K. A. Kemp—Roanoke, Va.; T. W. Brooks, Director of Station Operations; J. E. Gainer, Jr., SM—St. Louis; J. P. Higgins, SM—Elkins.

Fifth row—left to right: P. A. Medland, Supervisor of Station Personnel; A. H. Kipfer, SM—Indianapolis; H. S. Baumgardner, Supervisor of Food Service; M. K. Davis, SM—Buffalo; T. G. Rea, SM—Mexico City; E. B. Hale, SM—Boston; W. E. F. Clark, SM—Providence; R. A. Rowland, SM—Columbus; J. H. Woods, SM—Philadelphia; H. E. Gifford, SM—Rochester.

Food Transport

(Continued from page 17)

portation unit in the Bureau of Domestic and Foreign Commerce, and H. B. McCoy, who directs the units engaged in specific phases of research. Head of the foodstuffs unit is Charles E. Lund. Dehydrated foods are under a unit headed by Keith O. Burr, and studies in the field of concentrated foods are headed by W. W. Hubble for the department.

George Bauer of the research staff of Air Cargo, Inc., is making a detailed study of some 150 commodities—studies which are expected to show that overall costs (all factors figured in) for shipment of any given article will be almost as great as cost of handling the same article direct by air.

Air Cargo, Inc., also is studying the possibilities of cargo gliders. It is understood that a preliminary view indicates much must be done to adapt airplanes aerodynamically for use in towing gliders, and that an "air tractor"—some form of a "workhorse" flying wing—may prove to be the answer.

Russell Forbes, manager of Air Cargo, told *American Aviation* his organization expects to have a report on its current studies ready for the airlines next fall. The current studies and the final report will not be made public generally.

Since food is the greatest necessity in everyday life, and moves in the greatest volume in commerce, it appears to offer an unparalleled field in the future of air transport. Consensus in the industry is that researchers have just begun to scratch the surface.

'3 Dimensional Painting' Being Used at UAL Base

"Three dimensional painting" on maintenance machines, developed by du Pont and first tried in its central maintenance base at Cheyenne, Wyo., encourages "greater operating efficiency and accuracy, less eye fatigue and fewer accidents . . ." United Air Lines claims.

United has adopted light buff paint in its machine shop for points of operation such as control levers and moving parts, and horizon gray on other parts of the machine like the main body and sections removed from the worker's immediate point of operation. International orange goes on safety devices, such as belt and gear guards.

As an added refinement, United has white paint for the ceilings and walls of the machine shop, to within four feet of the floor, then gray from there to the floor.

Carriers Battle

(Continued from page 15)

"I am particularly glad that the Senator from Montana has mentioned in his discussion the matter of air transportation. I happen to be the chairman of the Subcommittee on Civil Aviation of the Committee on Commerce. That committee has been holding some hearings, not public hearings, but preliminary hearings, for the purpose of forming committee views as to policy on postwar aviation.

"I find that the interoceanic steamship companies and the railroads are already prepared to move in and try to take possession of the vast field of development which will unquestionably take place in aviation when the war is over. I say that is completely wrong. I do not think that the steamship companies, or the railroad companies, or truck companies should be permitted to participate in the development of aviation as a transportation field any more than I think the railroads should be permitted to dominate the water carriers, or truck transportation, or vice versa."

Most interesting recent development is the entrance of the Department of Justice into CAB route proceedings involving applications by surface carriers, described in an adjacent article.

No one in the air transport industry under-estimates the pressure now being applied by rail and steamship lobbies, not to mention truck and bus interests, to break down the legislative barriers which to date have kept them out of the air transport business. Yet the CAB and Congress as a whole is holding firm. The big test will come when Congress reconvenes and when the Lea bill comes up for action, and when Senator Wheeler puts to a test his proposal to keep railroads out of other transportation business.

Justice Dept.

(Continued from page 15)

The petition states that "Keeshin Freight Lines, Inc., is a holding company which owns and controls all outstanding capital stock of Keeshin Motor Express Co., Inc., Seaboard Freight Lines, Inc., National Freight Lines, Inc., and other corporations that are common carriers of property generally by motor vehicle in interstate commerce; and that Keeshin Freight Lines, Inc., also owns and holds all outstanding capital stock of Truck-Rail Terminals, Inc., a corporation that is a freight forwarder of property generally by all forms of transportation in interstate commerce."

Greyhound Corp., the petition continues, "seeks to establish a nation-wide air transport system to be owned, controlled and operated by the nation-wide Greyhound motorbus system, the largest motorbus system in the United States; railroads have substantial stock interests and common officers and directors in subsidiary motorbus companies of Greyhound Corp., which, with Greyhound, constitute the Greyhound motorbus system."

The petition reveals that in its route application, Greyhound "alleges, among other things, that it operated in 1942 over 63,000 miles of public highways, carried over 90,000,000 passengers, and received in passenger revenues over $112,000,000; that it owns or controls 15 motor carrier corporations which operate motorbus services; that it and its subsidiaries employ about 20,000 officers, employes, and ticket agents; that it employs 3,500 mechanical officers and employes, and has 8,900 officers, employes, and agents engaged in the solicitation of traffic, administration, etc.; and that it and its subsidiaries own and maintain 3,800 pieces of motorbus equipment, together with shops and garages for the housing and servicing of such equipment."

Greyhound alleges that "ownership and control of a nation-wide air transport service by the Greyhound motorbus system will make available to such air transport system Greyhound's present passenger stations, ticket offices, garages, shops, officer and employe personnel, advertising traffic solicitation and its other facilities," the petition reveals.

It recalls that Pan Atlantic Steamship Corp. "seeks to establish an air transport service of property and goods (express-air freight) between the terminal points of New Orleans, La., and New York, N. Y., and the intermediate point—Atlanta, Ga. which air transport service would be substantially competitive with the operations of Pan Atlantic Steamship Corp."

It reveals that Pan Atlantic "alleges, among other things, that all its issued and outstanding capital stock is owned by Waterman Steamship Corp.; that its traffic organization has been engaged in the solicitation and distribution of less-than-carload freight for shipment to and from the territory to be served, and that the potential poundage for its first year operations is 5,634,000, and its gross revenue from express and freight $507,060; that the type of equipment proposed to be used will be procured from existing aircraft manufacturers or will be designed and manufactured through facilities of the parent company, Waterman Steamship Corp.; that Pan Atlantic has successfully operated up to 11 vessels in the Gulf and coastwise trade between New Orleans, Boston, and other intermediate Gulf and Atlantic ports."

Engine Stand: A woman mechanic in the engine shops of Pan American Airways in Miami, Fla., makes an adjustment to an engine mounted in a new-type stand devised by Pan American engineers. The new stand makes it possible to reach with ease, from the floor, all parts of an engine during overhaul.

Universal Air Freight Corp. "seeks to establish an air transport system of 'air cargo' (express and freight) between all states of the United States," says the petition, "to be owned and operated by Universal Air Freight Corp. a wholly-owned subsidiary of the United States Freight Co., a holding company, which owns and controls a nation-wide carloading and freight forwarding system; that a railroad company has indirectly a substantial stock interest (and perhaps control) of the United States Freight Co.; and that such railroad company's indirect stock control in United States Freight Co. is presently a subject of investigation by the Interstate Commerce Commission and the Department of Justice."

Universal Air Freight "alleges, among other things," the petition continues, "that it is a subsidiary of the United States Freight Co., a holding company, which company owns nine freight consolidating and forwarding companies, three trucking companies, two warehouse companies, a foreign freight forwarder, and a merchandising company; that it seeks a certificate of convenience and necessity to operate as an air carrier of freight between all states of the United States or in the alternative to be declared an air carrier under the Civil Aeronautics Act; that it now solicits air freight for shipment via the Railway Express Agency (a wholly-owned subsidiary of railroads), issuing its own bill of lading from origin to destination and paying to the Railway Express Agency its regular published rate; that it has been unable to enter into any direct arrangements with the existing airlines due to the exclusive contract which they have with the Railway Express Agency, but that it believes that its operation could be more economical and lower rates could be charged to the public if it were permitted to enter into contracts with existing airlines whereby the latter could be paid compensatory charges for the air traffic and it (Universal) would receive compensatory rates for the services performed by it."

The petition further states that Universal Air Freight "alleges that the Universal Carloading & Distributing Co. of Delaware, the main operating subsidiary of the United States Freight Co., is the oldest and largest freight forwarding company and maintains over 100 offices in the United States and foreign countries, that it is represented by agents in hundreds of other cities in the United States and Europe, and that it has arrangements with approximately 3,600 trucking companies in the United States; that during the past 10 years said company has handled between 2,500,000,000 and 3,500,000,000 pounds of freight per year. (Universal) alleges that all of these facilities will be made available in the transportation of air cargo."

The petition recalls that Kansas City Southern Railway Co. "seeks to establish an air transport service of passenger, mail, and property to be owned, controlled, and operated by Kansas City Southern Railway Co. or its wholly-owned subsidiary, Kansas City Southern Transport Co., Inc., which air transport service would be substantially competitive with the rail and truck service of Kansas City Southern Railway Co. between Kansas City, Mo., and New Orleans, La., and certain intermediate points."

It reveals the company alleges that it and its controlled companies, "have total assets aggregating $152,072,236.31; that if the certificate is issued to the Kansas City Southern Transport Co. Inc., it will transfer the motor carrier, express, and other business of that company to Kansas City Southern Railway Co. or a subsidiary, changing the name of the transport company to Kansas City Southern Airlines, Inc., and that if the certificate is issued to the railway company it will set up a separate airline department of the railway, and, in either event, it will finance such airline service initially to the extent of $600,000; and that in addition to the transportation of passengers and mail, transportation of property by air will be conducted in connection with (the rail transportation of) Kansas City Southern Railway Co. and the Louisiana and Arkansas Railway Co. and other railroads, and truck service in connection with the Kansas City Southern Transport Co., Inc., (or its successor) and other truck lines, particularly those operated by subsidiaries of railroad companies."

Work Simplification Meeting

The Lake Placid Club Education Foundation announces the seventh consecutive session of the Work Simplification Conference will be held at Lake Placid July 5 through July 31 under the direction of Allan H. Mogensen, industrial consultant. Mogensen has set up work simplification programs at two plants of Consolidated Vultee Aircraft Corp., two North American Aviation plants, for Lockheed Aircraft Corp., United Air Lines, and Vega Aircraft Corp. Each delegate to the conference is expected to bring with him some problem from his own company and a better method of doing that job will be developed, the announcement says.

Monro Urges Local Feeder Air Service Throughout U.S.

A CHALLENGE to assume its responsibility to the nation's "forgotten cities" was directed at the air transport industry last fortnight by C. Bedell Monro, president of Pennsylvania-Central Airlines.

Monro, who recently called upon aviation leaders to stop painting fantastic pictures of tomorrow and face today the realities that will assure postwar aviation progress, declared that "something has got to be done to provide air service for those progressive cities over which our airplanes fly but do not stop". He said that these forgotten cities have demonstrated their need for air service but that these needs have, in too many cases, been shunted aside by an industry which forgets that a lot of its postwar thinking must begin at home.

Speaking before a combined luncheon meeting of the Aircraft Club of Detroit and the National Aeronautic Association chapter of that city, Monro asserted that intra-state development of aviation was one of the most vital considerations of the day and that the responsibility for such development must be assumed by the air transport industry.

He recommended a program of local and feeder services which would link many of the cities not having access to air transportation, with mainline air terminals. He proposed a "directional development" by existing airlines of those areas within reasonable distances of either side of existing air routes. Dependent upon its future as a practical commercial aircraft, the helicopter might later augment such development to cover even the smallest of communities.

The PCA head, whose company has pioneered in the field of short haul air transportation and has recently offered a trans-oceanic plan to establish a Seadrome route to Europe, suggested that "we cease to subordinate our domestic needs to international planning and give immediate thought to this vital question. This is very much our obligation and very much a public trust. If we don't prepare now to initiate these local and feeder services, we'll provide a significant barrier to the progress and expansion of those American cities that have clearly shown their need for this type of aviation."

As proof of the need and success of serving smaller communities, Monro pointed to the country's first short-haul route between Detroit, Flint, Lansing, Grand Rapids and Muskegon which, years ago, was laughed at when initiated by an industry which thought only in terms of spanning distances and continents and failed to consider that neighboring cities had the same right to air transportation as distant cities. The success of this and other PCA short-haul operations which have brought about considerable intra-state travel by air "proves conclusively the need of shortening distances between air hops, of giving progressive communities a break of the economic wisdom of such an operation", Monro stated.

Apart from meeting the demands and needs of communities not now being served by air, Monro declared that it was the industry's further responsibility to provide jobs for those who return after having fought and won our battles. "A national local and feeder program," he said, "intelligently planned and executed, would provide tens of thousands of new jobs in addition to providing an outlet for thousands of airplanes and increasing the business activity of smaller communities." He emphasized the industry's responsibility to develop such a program and declared that "the franchise under which the existing airlines now operate imposes a definite obligation to develop those territories—particularly in the more densely populated areas—which they now serve. It is in the public interest that we do so", he asserted.

The PCA president also discussed airport development as another important essential in postwar planning. "The airport is the very cornerstone of aviation progress in every community and we cannot wait until the war is over to plan to expand airport facilities, but we must do so at once so that adequate facilities will be available the moment the war is over. No community can hope to hold its position in the highly competitive peacetime economy if it does not see the need of its airport's meeting the inexorable demands of tomorrow's vastly increased air transport system. A community which does not consider its airport needs today will be behind the economic eight ball tomorrow" he said. He urged the airlines to give their unstinted support and cooperation to any program devised for airport expansion.

With respect to Detroit's airport facilities, he found that city in a most critical situation. "It is one of America's largest and most important cities" he observed. "It is an actual hub of transportation. It is the highest cargo producer in the nation and an important gateway to industrial and vacationing centers. Yet even in the prewar days this airport could not take care of its great volume of traffic and business" he pointed out in urging the civic and business leaders of Detroit to "do something at once to remedy such condition or this important city and the State of Michigan itself will suffer economically".

As the basis of an intelligent airport program, Monro recommended these steps:

1. The development of one main terminal—in fact one super air terminal—in each major city, adequate to meet the many connecting planes that will fly throughout each state, of sufficiently large landing area to permit concentrated activities. These main terminals, he believed, should contemplate buildings and hangars capable of immediate expansion and should provide special facilities and areas for the trucking, loading, unloading and storage of air cargo.

2. Immediate surveys and earmarking of one or two suburban locations to supplement, if and when necessary, the mainline terminal. These to be strategically located near suburban passenger travel areas.

3. Earmarking of other points to be set aside for future construction, with helicopter development in mind.

Troup Awarded Honor

Award of the OBE, Officer Order of British Empire, to C. R. Troup, general supervisor of schools, Canadian Pacific Air Lines, Ltd., marks the fourth time an officer of this firm has been so honored.

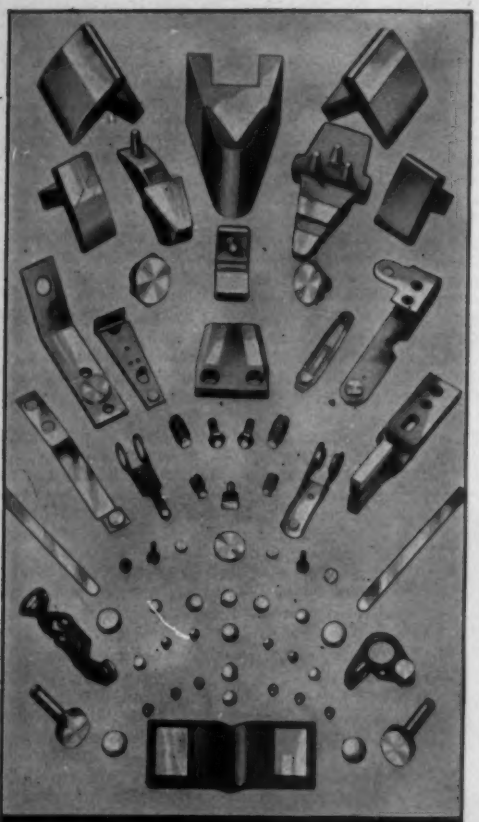
Troup was on King George VI's Birthday Honors list for "outstanding work in connection with the British Commonwealth Air Training Plan." Others at Canadian Pacific to receive this distinction are: C. H. Dickins, vice president and general manager; W. R. May, supervisor of schools, western Canada, and Capt. E. G. Carlisle, superintendent of flight research.

Fresh Water: A group of junior pilots of Pan American Airways is shown learning to convert salt water to fresh water through use of a water still. The condenser is attached to the oar.

COOPERATION Speeds Progress in Aircraft Contact Materials

When time spurs on necessity, cooperation does a mighty job in achieving the seemingly impossible. And Mallory contact engineers have been able to cooperate with a wealth of experience and knowledge to speed solutions of tricky problems.

Aircraft starting relays presented one of the trickiest. Recently Mallory was called in to test materials and set contact assembly specifications for a new airplane starting relay. It was a super-hurry job.



This relay had to handle normal loads of 250 to 300 amps and overloads of 1000 amps or more. Checking requirements against Mallory-developed contact metals, our engineers found that the application indicated current carrying contacts of Mallory coin silver—an alloy widely used as a substitute for fine or sterling silver. It is notable for maintaining a relatively low contact resistance and is harder than fine silver.

The arcing contacts were made from Mallory Elkonite* 20-S, a material with excellent resistance to electrical erosion, time-tried and proven for arcing contacts on heavy duty air breakers.

The contact assembly filled the bill, as laboratory and field tests conclusively demonstrated. Experience gave the key . . . "Know how" furnished the speedy answer. Cooperative consultation paid out.

When you have a contact or complete contact assembly problem, or want to avoid one, remember that the cooperation of Mallory engineering service is yours for the asking.

*Reg. U. S. Pat. Off.

P. R. MALLORY & CO. Inc.

MALLORY

ELECTRICAL CONTACTS AND CONTACT ASSEMBLIES
NON FERROUS ALLOYS
POWDERED METAL ALLOYS

While the design is still in blueprint form

CONSULT MALLORY
for Contacts and Contact Assemblies

P. R. MALLORY & CO., Inc.
INDIANAPOLIS, INDIANA
Cable Address — PELMALLO

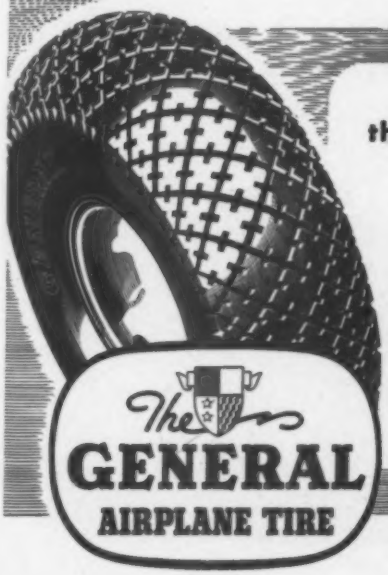
THIS BOBCAT HAS 9 LIVES, TOO!

Drawing from actual photograph of Cessna AT-17 "BOBCAT" used in Transitional bomber-pilot training.

. . . thanks to TIRES that are Safety-Engineered

★ Like the furry creature whose name it bears ...the "pads on the paws" of the CESSNA AT-17 *Bobcat* must be tough but resilient, must help absorb shock. For transitional bomber-pilot training in these fast, twin-engine advanced trainers carries its share of bouncy, wheel landings. So landing and takeoff safety in the Bobcat depends to a greater than average degree on *tires that can take it!*

And General Airplane Tires, backed by one of the longest records of practical aviation tire experience, are *proving* they can take it on every type of aircraft. You'll find General's *ahead-of-the-field* design on many types of trainers, heavy bombers, fast fighters...even on light ships in CAP! Too, you'll find top-quality Generals operating on carrier decks...on Alaskan ice and hot African sands. *Yes! Flyers everywhere depend on Generals!*



Here's Why General Has Won the Preferred Acceptance of Those Who Fly . . .

1. Built to Military and CAA specifications by experienced airplane tire engineers.

2. General's Rayon Cord means less weight, greater payload. More strength, resistance to impact and heat!

3. Dangerous static electricity, built up in flight, is grounded out the moment a General touches the ground . . . thanks to General's special electro-conductive construction.

4. There's a QUALITY General for every type of ship.

5. The same skill . . . craftsmanship and highest quality standards that have always characterized Generals are incorporated in the General Airplane Tire.

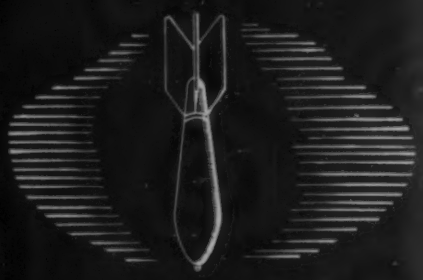
See Your Fixed Base Operator or Write—

THE GENERAL TIRE & RUBBER COMPANY

AVIATION DIVISION • AKRON, OHIO

The GENERAL AIRPLANE TIRE

KNOWN AROUND THE WORLD FOR QUALITY AND SAFETY



Who Wins Wars?

Strangely enough, the average man does! Much as we all detest war the fact is that under its stimulation a nation always develops new products with infinite peacetime applications. To date, scores of fantastic devices have been created for war purposes which one day will contribute mightily to the American Way of Life. Weatherhead is producing at the rate of *millions every day* many products that have peacetime application. Just as we've helped build cars, planes and refrigerators in the past, Weatherhead is well prepared to help you build these new products of tomorrow.

Look Ahead with

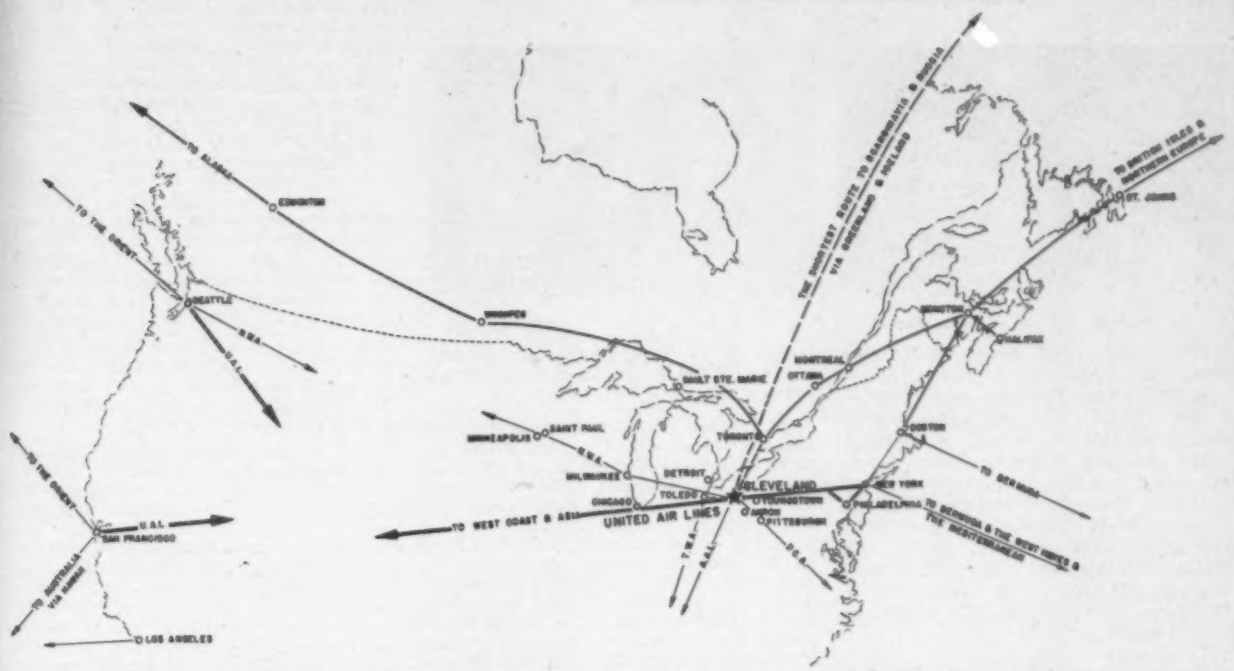
Weatherhead

THE WEATHERHEAD COMPANY, CLEVELAND, OHIO

Manufacturers of vital parts for the automotive, aviation, refrigeration and other key industries.

Plants: Cleveland, Columbia City, Ind., Los Angeles
Canada—St. Thomas, Ontario

Cleveland Is Pictured as British Air 'Port of Entry' to U. S.



A possibility that Cleveland, O., may become the chief port of entry in the United States for postwar air transport operators of the British Empire was discussed by C. C. Thompson, v. p. of United Air Lines, during a recent talk before the Cleveland Advertising Club. "Cleveland is 422 air miles inland from New York and approximately 500 miles inland from the port of Boston, but is on the U. S. A. border so that Empire planes operating over the airways of Canada could bring European commerce to the heart of industrial America without flying over any part of the United States other than those few miles involved in the maneuvering for a landing," he said. "Cleveland is approximately 237 miles closer to London by a great circle route than would be a great circle route from London to New York plus the air mileage from New York on to Cleveland."

Wayne University Aerial Transport Research Expands

Air transportation research at Wayne University, Detroit, will be expanded under an additional allocation of at least $19,000, it is disclosed by Dr. David D. Henry, executive vice president of the institution, in announcing the publication of a new world map which will be printed by General Motors Corp., and distributed by the university.

Showing proposed air routes to trade centers of the world, the new map is the accomplishment of Floyd A. Stilgenbauer, designer and cartographer, and is technically perhaps the best outline of the new global concept so far presented, according to Prof. Spencer A. Larsen, who directs the air transportation research at the university.

"Dr. Stilgenbauer's air projection," it was stated, "has been prepared to help Detroiters better understand their position in the world and their relation to the outside world. Conversely, it will help the outside world to better understand its relations to Detroit, the industrial capital of the world."

Dr. Henry said that the university's air transportation research, originally prompted by a $1,200 grant by Edward S. Evans, chairman of the Mayor's Airport Committee of Detroit, had developed so many impressive fields of exploration that a request for an appropriation of $25,000 to further the work had been included in the 1943-44 budget of the Detroit Board of Education.

The Wayne University research, being undertaken in its Department of Business Administration, includes assignments of exploratory graduate and undergraduate studies designed to help define the larger problems of air transportation and to understand more clearly their educational implications; to discover research talent; develop research techniques and ascertain phases of the problem that show greatest promise of responding to research treatment.

Subjects being worked upon by students, mostly seniors, include: Postwar policy of the United States with respect to the use of the skyways and the procurement of land bases to expedite international air freight; an airpole map for Detroit; tapping the resources of South America by air transport; commodities that have been carried by air transport in England, Canada, Netherlands, Germany, Russia and the United States.

Van Zandt Studies Transport Future In Latin America

Any estimates of the postwar market in Latin America for air transport must take into account the diplomatic considerations and nationalistic tendencies of 20 sovereign states, J. Parker Van Zandt, economist on the staff of Brookings Institution, told members of the American Society of Mechanical Engineers at the opening luncheon of the semi-annual meeting in Los Angeles.

Speaking along with Arthur Nutt, vice president of engineering, Wright Aero Corp., and Gordon D. Brown, director of Market Research and Planning, Douglas Aircraft, on the topic of "Conversion from Combat to Commerce", Van Zandt explored the immediate postwar market in Latin American for American air transport equipment.

He pointed out that geographic conditions of the continent and limited surface communication were directly responsible for 107,000 miles of airline routes developed there during the past 15 years.

People

Friedrich

O'Connor

Estill

Farkas

Palmer Price and **Agnes C. Hendrex** have become hostesses on Pennsylvania-Central Airlines following graduation at PCA's Washington school. Recent promotions on this line include: **Kenneth C. Sorby,** assistant station manager, Akron, to station manager, Morgantown; **H. F. LeGendre,** first officer MTD to flight instructor; **R. E. Pekrul,** first officer MTD to flight instructor; **H. R. Davis,** PCA trainee WA to second officer MTD; **E. C. Kegley,** PCA trainee to second officer MTD, and **J. N. Bolick,** PCA trainee to second officer MTD.

We hear recently that **Capt. Gerald J. Crosson,** U. S. AAF and former flying policeman of New York, and Miss Valina Hurst of Staten Island, were married . . . And, also, that **Maj. Gen. Alexander Ivanovich Belyaev,** Russian Air Forces officer serving as chairman of the Soviet Purchasing Commission in the United States, has received from **Maj. Gen. George V. Strong,** U. S. Assistant Chief of Staff, the Legion of Merit, for "outstanding services as special liaison officer of the Russian Air Forces . . ." Also on war, **Col. Thomas W. Hastey,** we understand, has become the new commanding officer of the Bolling Field Army Air Base—he was recently chief of staff of the Antilles Air Task Force in the Caribbean.

Looking in another direction, we are informed that **Cecil "Cy" Coppage,** formerly a CAA air carrier inspector and Pan American flight instructor, is now in charge of operations of the Air Transportation Branch of Board of Economic Warfare's Rubber Development Corp. . . . For **"Bud" Burnett** of Detroit, Lt. Col. of Marines at Guadalcanal, a party to which his old airline pals were invited, was held in Detroit on May 28 (Drinks were "prorated").

Now the ladies: **Kathryn Friedrich,** stewardess with American Export Airlines, has been commissioned a Second Lieutenant in the Air Evacuation Corps of the U. S. AAF . . . And **Mary Ellen O'Connor** of United Air Lines, with more than 2,500,000 miles of flying behind her in 10 years of service, has become a Navy nurse . . . To Railway Express Agency as a publicity writer in connection with air express traffic, goes **Anne Means,** at one time with Batten, Barton, Durstine and Osborne . . . **Mary Estill,** Link trainer instructor for TWA at LaGuardia Field, has joined the WAFS for training to become a ferry pilot.

In the fabricating and manufacturers division, we are told that **Richard S. Lowell,** formerly Eastern sales promotion manager and assistant division manager of Anheuser-Busch, Inc., St. Louis, has been appointed advertising manager of U. S. Plywood Corp., New York, N. Y. . . . **E. H. Holman,** resident representative and inspector for the British Air Commission at Lockheed Aircraft since 1940, has assumed similar duties at the Texas plant of Consolidated Vultee . . . **J. Farkas,** production expert and engineering test pilot, has become engineering manager of Commonwealth Aircraft, Inc., Kansas City, Kan., formerly Rearwin Aircraft and Engines, Inc.

Just before closing the forms, these pieces of intelligence cross our desk. **W. A. Patterson,** distinguished president of United Air Lines, has been elected to the board of directors of Insurance Company of North America, Philadelphia . . . **Shirley D. Smith** has left the advertising staff of *THE JAMESTOWN POST-JOURNAL* to be director of public relations for American Aviation Corp., just completely moved into new quarters . . . **Lt. James Bassett,** former aviation editor of the *LOS ANGELES TIMES,* is in L. A. on his first visit since Pearl Harbor . . . And **Lt. j.g. Leonard Eiserer,** USNR, who used to be right here in the editorial office of *AMERICAN AVIATION,* has been transferred from public relations to recreation officer of the Navy Pre-Flight School, Chapel Hill, N. C.

We should mention, too, that **Dudley Steele,** manager of Lockheed Air Terminal and well-known aviation pioneer, is now a captain in the Air Transport Command . . . **Air Vice Marshal C. W. Meredith,** CBE, AFC, air officer commanding the Southern Rhodesian air training group, is making a tour of RCAF training stations operating under the British Commonwealth Air Training Plan . . . **O. A. Beech,** lady secretary-treasurer of Beech Aircraft Corp., Wichita, Kan., has been chosen as one of the 12 most distinguished women in America by the *NEW YORK TIMES* . . . **Don Freeman,** well-known artist, recently spent some time making sketches and paintings of cadets at the Navy's Pre-Flight School in Chapel Hill, N. C. . . . **Paula Lind** is a Link-trainer instructor at Ford's Willow Run bomber plant.

CAB Plans Changes

(Continued from page 36)

care of the various classes of work in which large numbers of mechanics are engaged exclusively. Because of the wide differences between composite and all-metal aircraft, particularly new mechanics will be apt to be well qualified on either but not on both. There is a great group of mechanics, which is continually increasing, who are merely service men and have little opportunity to become competent in the overhaul and repair procedure of either composite or all-metal aircraft. This is particularly true of the military services where maintenance operations are conducted very much like an assembly line, with each man knowing and performing only a single task.

By making these three divisions it is possible to certify mechanics who are thoroughly competent in one line but lack long experience and broad general knowledge of the whole field.

Four service ratings provided for aircraft engine technicians are: (1) Maintenance and service of unsupercharged engines, (2) repair and overhaul of unsupercharged engines; (3) maintenance and service of supercharged engines; (4) repair and overhaul of supercharged engines. Ratings on supercharged engines automatically will give holders the privilege pertaining to unsupercharged ratings but the breakdown will enable many mechanics competent to work on smaller engines to be certificated for that work alone.

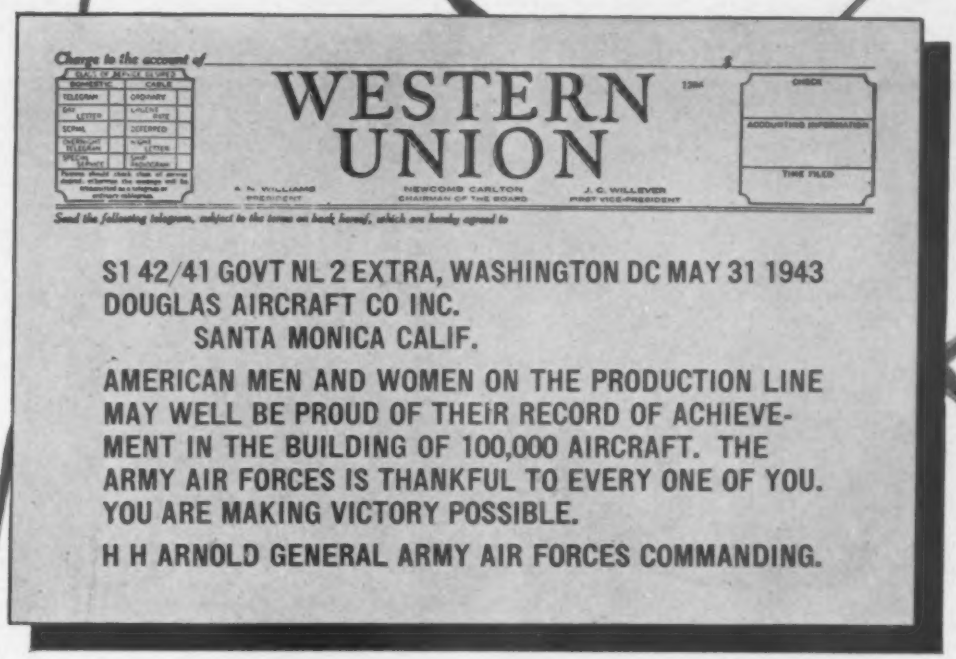
Five "specialty" ratings are provided for specialist technicians: (1) propellers; (2) instruments; (3) radio; (4) carburetion systems; (5) ignition systems. They are provided only for specialists engaged solely in this work.

It is further proposed in the amendment to grade each technician according to his skill and experience in each service rating he holds. These grades are based solely on knowledge, training, skill and experience with each successively higher grade brings additional privileges constituting a delegation of authority from CAA to the industry. For instance, the grade of Senior Mechanic for an aircraft technician, with service rating for repair and overhaul of composite aircraft enables him to perform his maintenance tasks and return the aircraft to service immediately without necessity of inspection by a CAA inspector. This privilege has been extended only to approved repair stations up till now. By eliminating delays and the necessity for a greatly increased staff of CAA inspectors after the war, CAA feels this delegation will provide much better service to the industry. In the same way the grade of Master of Maintenance will convey privileges heretofore exercised only by CAA inspectors.

CAA feels that the vastly expanded industry will suffer seriously after the war if maintenance operations are not as carefully differentiated as piloting operations. They anticipate a great need for mechanics certified in each of the categories they propose to establish and an improvement in efficiency if these changes are adopted. The time limit for comments was extended to July 1 and officials are eager for as much constructive comment as possible from the industry.

1940 "We can do it!"

When on May 16, 1940, the President asked for 50,000 planes, many were the doubts that it could be accomplished. But with unbounded faith in American free enterprise Donald Douglas spoke four simple, brave words for the industry: "WE CAN DO IT."



Charge to the account of

WESTERN UNION

S1 42/41 GOVT NL 2 EXTRA, WASHINGTON DC MAY 31 1943
DOUGLAS AIRCRAFT CO INC.
SANTA MONICA CALIF.

AMERICAN MEN AND WOMEN ON THE PRODUCTION LINE MAY WELL BE PROUD OF THEIR RECORD OF ACHIEVEMENT IN THE BUILDING OF 100,000 AIRCRAFT. THE ARMY AIR FORCES IS THANKFUL TO EVERY ONE OF YOU. YOU ARE MAKING VICTORY POSSIBLE.

H H ARNOLD GENERAL ARMY AIR FORCES COMMANDING.

1943 "We are doing it!"

When the President increased his request from 50,000 to 125,000 planes, it was still "WE CAN DO IT." Today having exceeded 100,000 airplanes the larger goal is already in sight and the industry is prepared to deliver *as many more as are needed*. Thus has the greatest industrial challenge of all time been met. Thanks must go to the legion of men and women who in 1940 never dreamed that they could build airplanes but, seeing the need, pitched in and learned. Theirs is the greatest industrial accomplishment in history.

DOUGLAS AIRCRAFT CO., INC., Santa Monica, Calif.
El Segundo Long Beach Tulsa Oklahoma City Chicago

Manufacturing Digest

NOORDUYN AVIATION, Ltd., Montreal, Que., Vice-President and General Manager R.B.C. Noorduyn reports the company's backlog of unfinished business is continually increasing and now approximates $62,000,000. Monthly deliveries of UC-64 planes (Noorduyn Norseman) to the U. S. AAF are increasing, he said. He reported relations with employes, now exceeding 9,000, are "very good" and present agreement will be in force until July 1, 1944.

AIRCRAFT ACCESSORIES Corp., Burbank, Cal., will soon occupy its eighth plant in the Kansas City, Kan., area with 24,000 feet of floor space. Company is manufacturing precision radio and aircraft hydraulic equipment. In addition to Kansas City plants it has three in Slater, Mo., and has just opened its third plant at Burbank, Cal.

EVERSHARP, Inc., New York, N. Y., annual report shows that in September, 1942, a wholly owned subsidiary, War Products Division, Eversharp, Inc., was organized to enter into prime contracts with the Navy for production of aviation equipment and parts. Officials said the consolidated net profit for year ended with February for the company and its Canadian subsidiary was $571,421, equal to $4.28 a share on the common.

BREWSTER AERONAUTICAL Corp., Long Island City, N. Y., announces signing of new contract with Consolidated Vultee Aircraft Corp. to manufacture wings and floats for Navy PBY-5 Flying Boats at its Newark division, third large contract obtained since the Henry J. Kaiser organization began directing Brewster activities recently. Brewster Buffalo Fighters are now being built at Johnsville, Pa., plant. Newark plant also is making wings and sub-assemblies for the Army's new C-46 transport planes under contract with Curtiss-Wright Corp.

OTTO AVIATION Corp., Bloomfield, N. J., manufacturers of hydraulic valves, right angle drives, tab controls and other precision parts and assemblies for military aircraft, doubled floor space of its plant June 1. Company will be enabled to contract for additional lines of aviation products, including both aircraft and powerplant work, according to President Bowman R. Otto.

GOODYEAR TIRE & RUBBER Co., Akron, O., Dr. L. B. Sebrell, head of research department, states technologically and from the sole standpoint of military needs, this country is practically "over the hump" of its rubber dilemma. Research on synthetic rubber has progressed to the point that it can be converted into almost any needed war product if no more natural rubber was available, he said.

AMONG FIRMS RECEIVING the Army-Navy "E" award are: American Foundry Equipment Co., Mishawaka, Ind.; the Whiting Corp., Harvey, Ill.; Rohr Aircraft Coro., Chula Vista, Cal.; The Aviation Corp.; Republic Aircraft-products Division, plant No. 1, Detroit, Mich., and plant No. 2, Detroit; Century Metalcraft Corp., manufacturing division, Los Angeles.

KOLLSMAN INSTRUMENT Division of Square D Co., Elmhurst, N. Y., announces that its Optical Division, which will market binoculars, prisms, and lenses, now is in production. The output of standard precision aircraft instruments from Kollsman plants will be increased due to the completion of additional manufacturing facilities, the announcement said. Volume for the whole of 1943 should exceed 1942 sales of $34,349,044, it was predicted by F. W. Magin, president.

BRIGGS MANUFACTURING Co., Detroit, Mich., has a backlog of $500,000,000 in war contracts, it was announced in a letter to stockholders. The company is turning out aircraft and ordnance material at a dollar rate of twice the peacetime production rate, the letter said.

CLEVELAND PNEUMATIC AEROL, Inc., Euclid, O., has recently been established as a subsidiary of Cleveland Pneumatic Tool Co., Cleveland, O., "at a total estimated investment of more than $23,000,000, including cost of machinery and equipment."

BRIGGS MANUFACTURING Co., Detroit, Mich., has reported April shipments on two of its principal wing deliveries were 23.5% and 100% higher than in March. Shipments were said to have been tripled on one important wing contract.

GLENN L. MARTIN Co., Baltimore, Md., is reported to have produced, in Maryland and Nebraska plants during the first four months of 1943 more than double the total for the first eight months of 1942. In the same period of 1943, production was described as more than double that for entire year of 1941, when sales were $67,200,000.

B. F. GOODRICH Co., Akron, O., has disclosed a new use of its synthetic rubber, Ameripol, "a specially designed thermostat used to control the temperatures of lubricating oil used in certain aircraft engines."

E. I. du PONT de NEMOURS and Co. (Inc.), Wilmington, Del., has announced another plant has started production of "Lucite" methyl methacrylate resin for transparent sections of military planes, with entire production allocated for the Government.

Magnesium Plants Go Into Operation

Start of production in a magnesium-chlorine plant, projection of plans for another, and use of silver to replace copper as a conductor in Dow's Michigan factory, played parts in the aviation-magnesium picture recently.

At the Louisiana plant of Mathieson Alkali Works, Inc., magnesium metal is already being made, and company has estimated a "future capacity" of more than 50,000,000 lbs. yearly from this factory. Dolomitic rock, principal raw material, is obtained from nearby quarries. Both the metal and liquid chlorine are produced from what Mathieson says is a "new process" developed by its own engineers.

Phelps Dodge Copper Products Corp. has announced plans for the making of aluminum and magnesium tubes, rods and shaped parts, to be fabricated by the extrusion process. A sizeable plant is projected, but location or other details were not reported.

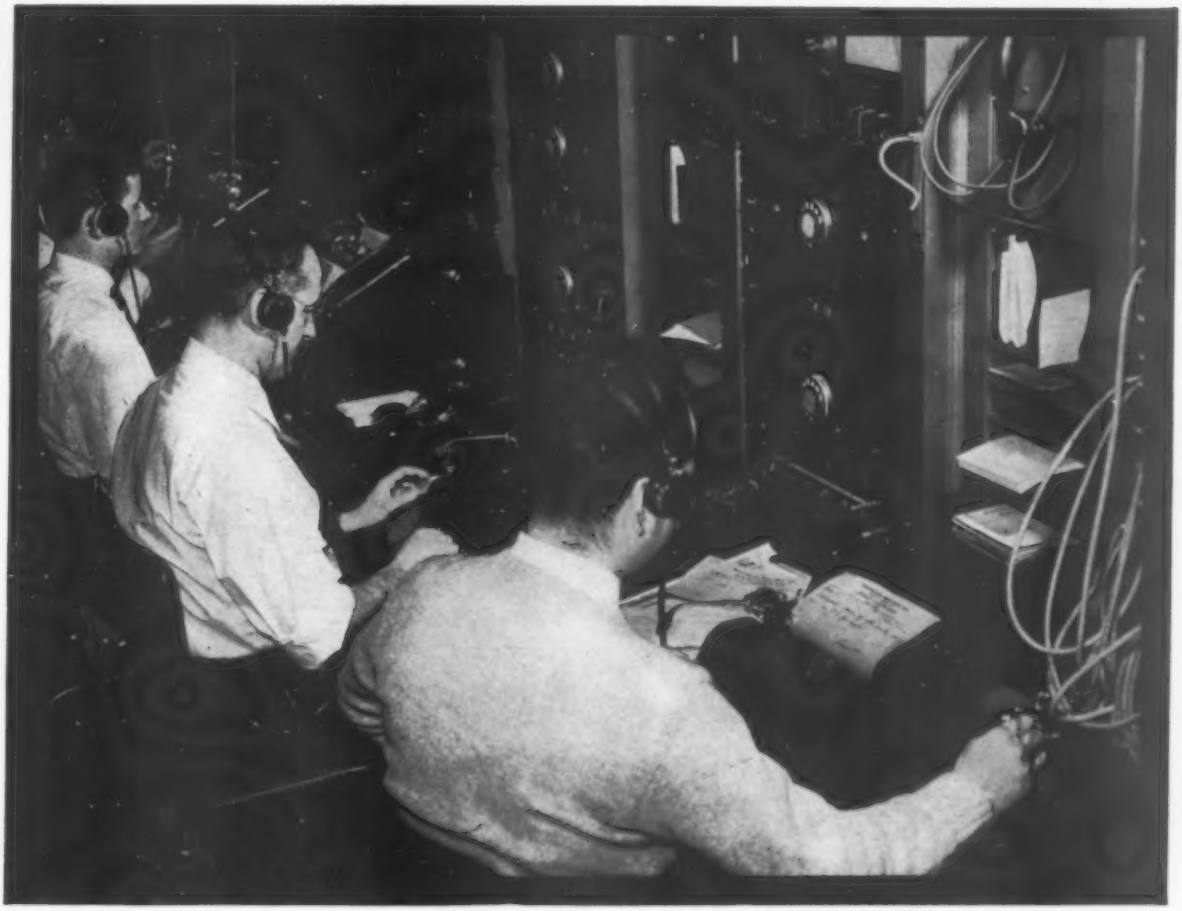
Concurrently, report said Dow Chemical Co. has received 2,000,000 lbs. of silver from the Government, valued at $20,000,000, for use as an electrical conductor in its new magnesium plant in Michigan. The silver is in the shape of large "bus bars", and will carry a 600 volt current.

In addition, the new Chicago plant of Aluminum Company of America has started production of alloy aluminum sheet for the outer covering of bombers and fighters. It also makes special alloy ingots for other plants making forgings and extrusions.

On the Line: Assembly line scene at Aeroproducts Division, General Motors Corp., Dayton, O., shows worker in foreground using hand lever to adjust propeller on assembly table. Man in background uses a hoist to raise a four-bladed propeller. Picture shows both the four-bladed and three-bladed automatic, controllable pitch propellers now in production.

Reliability ★ BUILT IN ★
for The Nerve Centers of Air Lines

The dependability of Wilcox equipment has been proved in use by leading air lines. Today, the entire output of Wilcox factories goes to military needs. Wilcox was chosen to help win the war by "building in" reliability for vital communications. When the war is over, Wilcox facilities will be ready to keep pace with a greater air-borne world.



Wilcox Installations. Photo, courtesy American Airlines

There **MUST** Be Dependable Communications

Communication Receivers
Aircraft Radio
Airline Radio Equipment
Transmitting Equipment

WILCOX ELECTRIC COMPANY

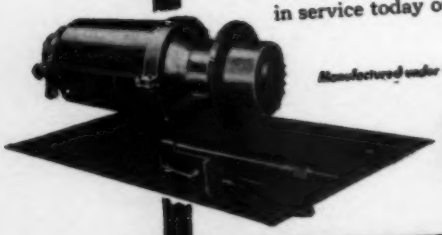
Quality Manufacturing of Radio Equipment

14th & Chestnut — Kansas City, Missouri

Quick Starting

Seconds Saved In Starting Can Bring Victory

"They're Off!"—The Breeze Cartridge-Type Engine Starter spurs the 2,000 horsepower of a modern aircraft engine into thunderous life. For instant starting under all conditions of heat and cold, hard-hitting bombers, fighters and tanks of our armed forces rely on the Breeze Starter. The touch of a switch ignites slow-burning cartridge fuel, providing sufficient torque to crank the engine at the rate of 180 R.P.M. Cartridges are light, easily and safely carried. Since the starter has fewer parts than any other starting equipment, maintenance time is reduced to a minimum. Designed for use on installations ranging from 300 to 2,000 horsepower, the Breeze Cartridge Starter is in service today on nearly every type of American military and naval aircraft.



Manufactured under Coffman patents

BREEZE CORPORATIONS, INC.
Newark, New Jersey

BREEZE MARK

Breeze

Franklin First to Power a Transport Glider

It's getting to be a habit—this tendency of leading designers to specify Franklin power for their experimental planes. Among recent Franklin "firsts" have been the Sikorsky helicopter, the Northrup Flying Wing, the twin-engine Langley plastic-plywood ship and the new Piper PT-1 low-wing trainer. And now, latest in a long list, is America's first power glider, Northwestern Aeronautical's CG-4A cargo and troop transport, equipped with two Franklin engines.

Still more revolutionary Franklin "firsts" are in the making at the Aircooled Motors plant. They are new, more powerful engines designed by Franklin engineers for special wartime aviation duties.

Standardize on Franklin power for your post-war ships. Get the same reliability and engineering excellence which has made Franklins first choice for so many of aviation's new developments. In any Franklin—from 65 H.P. to 500 H.P.—you get the benefit of 43 years' experience in producing fine air-cooled engines.

AMONG Franklin FIRSTS

FIRST to power a twin-engine light plane, the plastic-plywood Langley.

FIRST to power the successful Sikorsky helicopter.

FIRST to power the experimental Northrup Flying Wing.

AIRCOOLED MOTORS CORP. ★ SYRACUSE, N. Y.

Industry Executives May Ask Army, Navy Aid for Child-Care

Unless the Government finds a way to amplify its child care program, industry executives plan to petition the Armed Services or other claimant agencies, for permission to institute industry-operated child care centers, with costs charged as a part of production expense, it is reported.

This is more than justified, they contend, when it is considered that present Federal child care programs take care of less than one-tenth of the current needs, and with manpower for the expanded program dependent mainly during the coming months upon a great influx of women workers, an increasing number of whom will be mothers with young children.

Under present arrangements, the Federal Works Agency controls the child care procedures under a contested clause in the Lanham Act which extends authority to FWA to operate "facilities" for the benefit of increasing plant production.

Other groups are interested in the subject, but must certify their plans to the Federal Works Agency for action. Thus the Office of Education or the War Communities Service have no actual authority to establish or maintain child care centers, but can sponsor them. Local government boards, of the area, such as the department of education, customarily inaugurate the project, which must be cleared by regional FWA offices and then by the headquarters in Washington. It is understood that clearance is also obtained by FWA from the Office of Education or other Washington offices of the area group asking for the project.

The necessary time involved has been one of the difficulties encountered in putting the plan into speedy operation.

Requests are now before Congress for an increase in appropriation from $300,000 to $500,000 for FWA. Spokesmen of the Agency state that the added $200,000 would be expended almost wholly for child care expansion.

Congress has not seemed willing to grant this added amount to the Agency. In an amendment offered by the Senate Public Building Committee, Senator Taft (R. Ohio) suggested that loans and credits for child care programs under the Lanham Act be abolished, as soon as the Thomas bill, calling for $20,000,000 on a state supervised program, becomes law.

The Thomas bill passed the Senate but it is expected that the House will be in recess before considering it. According to this plan the extended program would be put under the Office of Education and the Children's Bureau of the Department of Labor.

If the Thomas bill is held over until fall, it is understood that the Federal Works Agency will continue its present operating child care program with funds it still has available.

However, from the industry standpoint, delay in arranging for immediate expansion of the plan may prove fatal to planned production. For this reason, it is expected that the issue will be put up squarely to Washington executives interested in manpower for production for action, even if it means proceeding without Congressional sanction.

Douglas Management Committee: This is Douglas Aircraft Company's new management committee, that will streamline the executive functions of the company's nation-wide network of plants and operations. Left to right—Frederic W. Conant, vice president-director of manufacturing; Ralph V. Hunt, vice president-comptroller; John M. Rogers, vice president-director of contract administration; Donald W. Douglas, president; Arthur E. Raymond, vice president-director of engineering, and A. M. Rochlen, director of industrial and public relations.

Avion, Inc., Production Is "Ahead of Schedule"

Production on sub-assembly contracts for Douglas and Vega is "ahead of schedule" at Avion, Inc., Los Angeles, Cal., according to Richard W. Millar, president.

Further progress has been made, Millar said, in that a training program in the plant "has created workers with new skills, and the total absenteeism figure, including absence from illness, is 3.4%.

Weihmiller Establishes New Consulting Service

H. E. Weihmiller, former vice president and eastern representative of Consolidated Aircraft Corp., has established the Aircraft Consulting Service in Washington and has opened offices at 618 Shoreham Building.

Weihmiller

He announced that he will act as general representative of various aircraft services.

Weihmiller has been in the aviation industry for many years. He is a graduate of Massachusetts Institute of Technology and was at one time chief engineer of Travel Air Co. He also was formerly head of Corman Aircraft Corp.

To Make Plane Parts

American Central Manufacturing Corp., Connersville, Ind., announces it plans to participate "in the manufacture of parts for a giant cargo plane now rapidly emerging from the blue-print stage."

Concurrently, company expressed its belief that, with its operations expanding every month, by November it will be shipping finished products at "approximately double the rate" for the corresponding month in 1942.

GM Converts Tank Plant On Coast to Plane Work

General Motors Corp., Southgate, Cal., will convert its large South Gate plant to manufacture of airplanes and parts after Sept. 1, according to announcement by Col. K. B. Harmon, chief of San Francisco Ordnance District. General Motors has been making M-5 tanks at this plant and it is indicated that plant will be leased to Douglas Aircraft although as yet no leases have been signed. Production of M-5's will continue at the company's Cadillac division in Detroit.

Henry L. Clark, general manager of the corporation's division, stated tank manufacture would continue until late in August and that Douglas, through F. W. Conant, vice president of manufacturing, indicated it will "make every effort to employ at existing government-authorized rates of pay for the aircraft industry in this region every qualified worker formerly employed by the company."

Col. Harmon said Army Ordnance is working on plans to award other contracts to General Motors subcontractors in the Los Angeles area so that employes of the factory may continue on the production job at work with which they are familiar.

Makes Helicopter Parts

Announcement that the Norge Division of Borg-Warner Corp. is making parts for the helicopter designed by Igor Sikorsky in one of its Detroit plants has been made, and production was reported to have started soon after Rear Admiral Howard L. Vickery revealed that special decks would be built on Liberty ships so that helicopters can be used at sea.

Opens Aviation Department

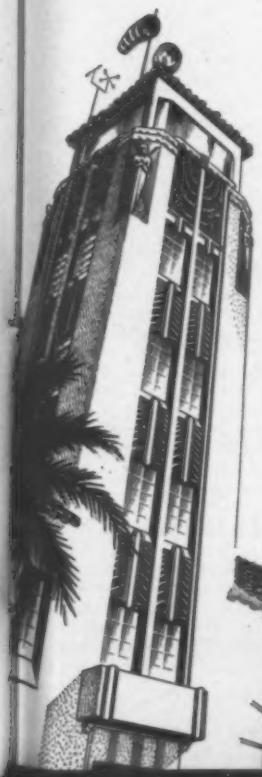
The American Flange & Manufacturing Co., Inc., New York, N. Y., and Chicago, Ill., makers of Tri-Sure Closures, has opened its own Aviation Department at its headquarters in Rockefeller Plaza, New York. Plans of the company will include special services to the aviation industry. The department is headed by T. H. Chamberlain, a pioneer in adapting aviation to ordinary business.

SINCE 1929

TRAINING

MEN YOU CAN TRUST

Curtiss-Wright Technical Institute students are trained by an unsurpassed and experienced faculty of practical engineers and technicians, each especially qualified in his own line of instruction. Upon graduation these students meet the exacting requirements of the Aircraft Industry and the U. S. Army Air Forces.



CURTISS TECHNICAL WRIGHT INSTITUTE

MAJOR C. C. MOSELEY, PRESIDENT SINCE ITS INCEPTION AND SOLE OWNER

GRAND CENTRAL AIR TERMINAL
GLENDALE (LOS ANGELES CO.) CALIF.

CONTRACTORS TO THE
U. S. Army Air Forces

George M. Williams To Be Vice President Of Curtiss-Wright

G. W. Vaughan, president of Curtiss-Wright Corp. has announced that George Montague Williams, a veteran figure in the aviation and automotive industries, has joined the organization and will be elected a vice president to serve as assistant to the president in an executive capacity. Williams was formerly assistant to the chairman of the board of Consolidated Vultee Aircraft Corp., on leave of absence from the Russell Manufacturing Corp. of Middletown, Conn., of which he is president.

Williams

Williams became interested in aviation before World War I when he joined the H. E. Talbott Co. of Dayton, O., in 1911, became chief engineer and was assigned to build a flying field for the Wright Field Co. When the Dayton Wright Airplane Co. was organized in 1917 to build planes, he was made assistant to the president and later appointed general manager.

Williams left Wright in 1922 to become president of the Wire Wheel Corp. of America and so revitalized it that in 1924 he was asked to take over the management of the Marmon Motor Car Company.

In 1934 he became president of the Russell Manufacturing Co. and was granted a leave of absence in 1942 to become vice-chairman of Vultee Aircraft, Inc., and chairman of the board of American Central Manufacturing Corp. When the Vultee and Consolidated organizations merged early this year, he became assistant to the chairman of the board of the new corporation.

Three Firms Get Large Army Glider Contracts

Ford Motor Co., Gibson Refrigerator Co., and Commonwealth Aircraft, Inc., have received new glider contracts from the War Department, it was reported last week.

The Ford contract calls for approximately $31,000,000 worth of gliders capable of carrying 15 invasion-equipped soldiers. The craft will be built at the company's wood-working plant at Iron Mountain, Mich.

Gibson has received a larger contract than the one received last year. It involves approximately $15,000,000. This company was commended by the Army in 1942 for producing a glider in less than six months after it had ceased manufacturing refrigerators. Gibson is believed to be the only prime glider contractor without previous aircraft manufacturing experience.

Commonwealth Aircraft, second only to Ford in production of gliders, has received a $15,000,000 contract also. The company was organized last fall, taking over property and equipment of Rearwin Aircraft and Engines, Inc., Kansas City.

Bendix Shifts Two Men

W. H. Houghton, comptroller and a director, has succeeded E. R. Palmer as treasurer. who has resigned as vice president-finance of Bendix Aviation Corp., Detroit, Mich., according to the company.

Palmer will continue as director and a member of the executive committee. Arthur E. Raabe, assistant to vice president-Eastern Group Executive, was promoted to full vice president and group executive, and will be in charge of the Bendix Radio, Julien P. Friez and Sons, Marine and Norwood divisions.

An Important Meeting: Recently, Curtiss-Wright Corp. brought together four of the men who direct warplane output for the company. In photo, left to right, are G. J. Brandewiede, Kentucky plant manager; William Davey, manager of Curtiss-Wright plants at Buffalo, N. Y.; J. P. Davey, plant head at Columbus, O.; and C. W. France, manager of the Missouri plant. They direct production of the Helldiver, Commando, and Seagull planes, each designed for a specific mission against the Axis.

Gordon D. Brown Heading Douglas Research Division

Gordon D. Brown has been appointed director of market research and economic planning of Douglas Aircraft Co., Inc., reporting directly to the president, according to announcement by President Donald W. Douglas. Brown has been in the Douglas sales department for many years, recently as director of contract sales.

He is forming and will supervise a new department, to be known as Market Research and Economic Planning. The function of this department, Douglas said, is "to anticipate as nearly as possible the problems and prospects which may develop for this company, bringing these matters to the attention of the president."

Aircraft Section Formed By Johns-Manville Firm

Formation of an Aircraft Section of Johns-Manville's Industrial Department and the appointment of William S. Hough as manager were announced last week by L. A. Baldwin, vice president in charge of the department.

Hough

"While Johns-Manville has served the aviation industry almost from its inception," Baldwin said, "its wartime growth and the multiplicity of its requirements demand a highly specialized service. Through the creation of a special section of our industrial department to serve the manufacturers of airplanes and parts, we hope to put ourselves in a position to be of additional assistance in the solution of some of the industry's wartime and postwar problems."

E. G. Bern to Supervise Kaiser-Hughes Project

Edward G. Bern, formerly company representative in Washington, D. C., has been appointed general manager of Hughes Aircraft Co., with headquarters in the main plant at Culver City, Cal.

Bern's immediate responsibility is supervision of the Kaiser-Hughes cargo plane project. He is credited with having had more than a quarter century's experience in the aircraft industry, and was at one time a vice president of American Airlines.

Republic Calls Stock

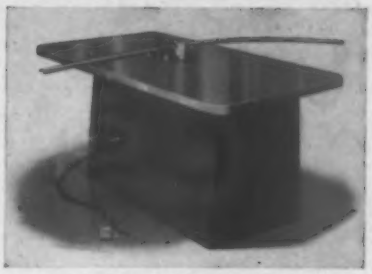
Following recent meeting of its board, Republic Aviation Corp. announced from Farmingdale, L. I., N. Y. that it planned to retire 25% of its second preferred stock as of July 1st. This adjustment will leave 150,000 shares of that issue outstanding.

What is the FAST, ACCURATE WAY to TRIM AIRCRAFT STAMPINGS?

New, unusual, and complicated parts—required by new aircraft designs and other special war equipment—are being trimmed, formed, or both on Quickwork-Whiting Stamping Trimmers.

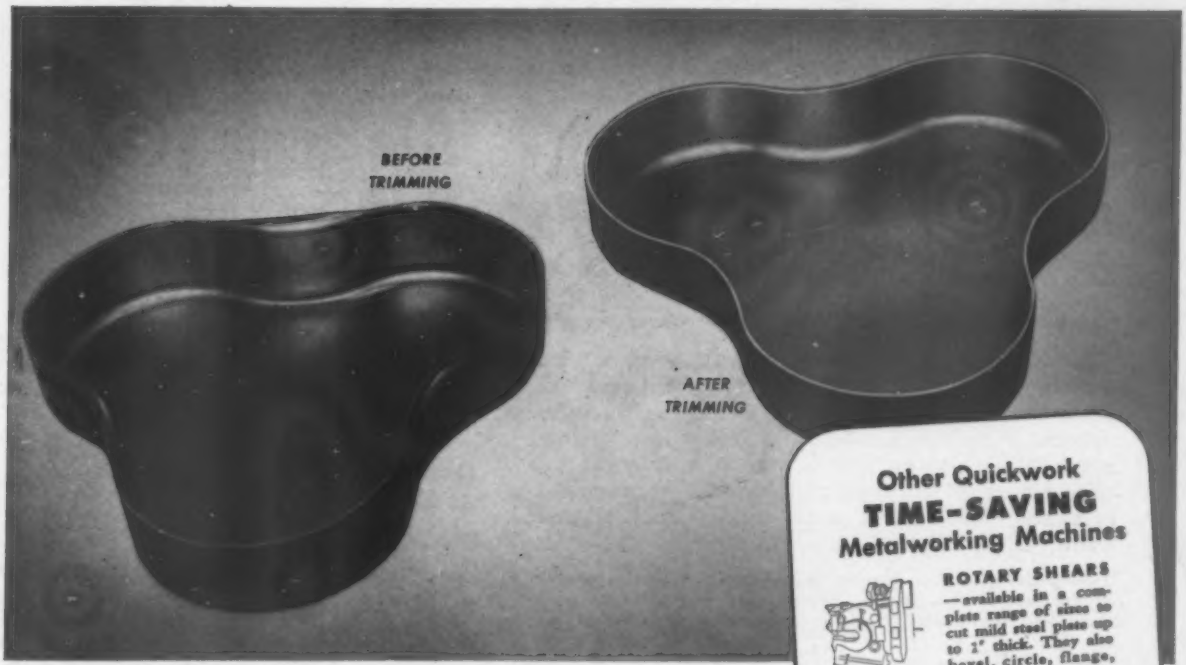
In many instances, these Quickwork machines have cut to seconds operations that were formerly done by slow, cumbersome methods.

If you have stampings of any kind—stainless, dural, or other alloy—or any shape, investigate Quickwork-Whiting Stamping Trimmers. By releasing presses and operators, and speeding up trimming or forming operations, they can break production bottlenecks in your plant.



Standard Quickwork-Whiting Stamping Trimmer.

No dies required. Stampings are trimmed accurately in a single pass.



Other Quickwork TIME-SAVING Metalworking Machines

ROTARY SHEARS
—available in a complete range of sizes to cut mild steel plate up to 1" thick. They also bevel, circle, flange, and joggle.

POWER HAMMERS
—provide constant speed, unvarying rhythm. Force of blow controlled without slowing operation. Available in four sizes.

QUICKWORK-WHITING DIVISION

WHITING CORPORATION

15647 LATHROP AVENUE, HARVEY, ILL.

THE TOMORROW YOU'RE FIGHTING FOR:

COUNTRY GENTLEMAN
...post-war style

Tomorrow, you may share-the-ride with neighbor Brown – but, not to save tires! You may live 40 or 50 miles from work, but in your family plane* it will take only 20 minutes ... 28 cents worth of gas ... and, no rubber. Nor, will country boys envy city boys, for each will share the benefits of urban and rural living.

Utopian dream? No. For just as World War I made us "a nation on wheels", so shall World War II make us "a nation on wings".

TOMORROW, you can live a new life of unhurried speed, where family helicopters, super airliners and many amazing new machines will provide ample leisure. Time, to live and enjoy things like hoeing a garden ... not for Victory, but for recreation ... time to romp with the children or, to hear the crickets and frogs at sundown. Whatever *you* want ... TOMORROW'S worth fighting for.

**Fool-proof planes, as simple and moderate-priced as your car, are here NOW. One of them, the Sikorsky Helicopter, will safely "windmill" to earth if the motor is shut off.*

WESTERN AIR LINES
AMERICA'S PIONEER AIRLINE

General Offices: Lockheed Air Terminal, Burbank, Calif.

Aviation Corp. Net Sales Are Doubled In First Six Months

Aviation Corporation for the six months ended May 31 had net sales of $37,780,792, more than double the $17,423,296 reported for the same period in 1942.

On this volume, consolidated net income of $1,902,164 was realized, equal to 33c a share, compared with $2,478,291, or 43c the year previously. This reduction in earnings was due largely to 55% increase in Federal tax provision, which was $4,818,000 against $3,100,000. It was also due, according to the corporation's statement, "to the fact that income for the first half of 1942 included profit on sale of securities amounting to $1,318,308, with no similar profit now reported, as well as a decrease of $349,277 in dividend income." Further, in the first half of this year, $609,000 was provided for postwar readjustment, contrasted with only $330,000 so reserved in the same period last year.

"Earnings from manufacturing operations alone showed some improvement as a result of the much larger volume of business," Victor Emanuel, president, said, which was shown in the $7,975,814.03 figure for gross profit from sales, and the $6,720,163.67 amount in consolidated net income before provision for Federal income and excess profit taxes.

It was stressed that consolidated earnings as reported do not include the corporation's equity in the undistributed earnings of subsidiaries not consolidated, including American Central Manufacturing Corporation. Consolidated statement also does not include earnings of other companies in which AVCO has large investments, such as Consolidated Vultee Aircraft Corp., American Airlines, Pan American Airways and Roosevelt Field.

Wind Tunnel Contract Is Let for Ames Laboratory

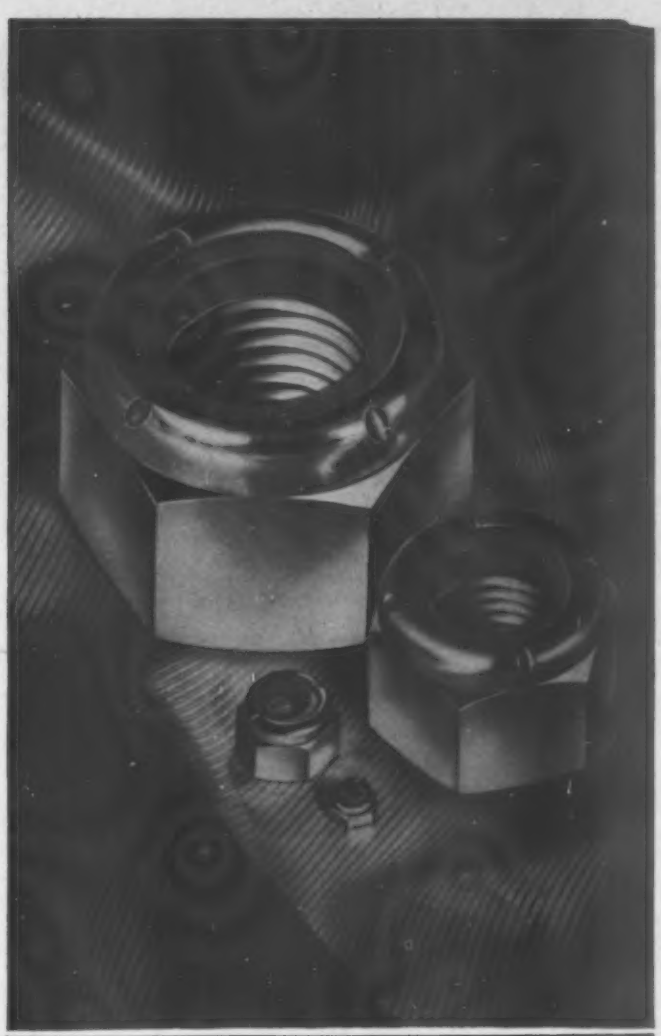
A new high-pressure wind tunnel, costing more than $2,000,000, and designed to provide conditions closely approximating those encountered in all types of actual flying, is under contract for erection by the Pittsburgh-Des Moines Steel Co. and is scheduled to be completed before the end of this year.

The contract was let by the National Advisory Committee for Aeronautics and the wind tunnel will be built on the grounds of Ames Aeronautical Laboratory, adjoining the naval air station at Moffett Field, Cal.

The new tunnel will be the 14th of those built or under construction by Pittsburgh-Des Moines. Close by the site of the projected tunnel is the largest wind tunnel in the world—also under construction by Pittsburgh-Des Moines for N.A.C.A. The latter tunnel will cost more than $5,000,000 when completed.

E. H. Chamberlin, N.A.C.A.'s executive officer, said on a recent visit to the Ames Laboratory that the new wind tunnel is part of an intensive development program to speed aviation research for war. Since the war started all of our experiments have been with aviation directly related to the war effort," he said.

They're the NUTS for tough fastening jobs



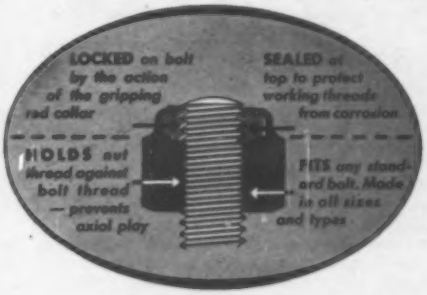
There are more Elastic Stop Nuts in America's planes, tanks, guns, naval vessels and production equipment than all other lock nuts *combined*.

All because these nuts stay put.

The reason is the red elastic locking ring in the top. This grips the bolt and holds the threads in pressure contact. And chance of wobbling and axial play is eliminated.

Looking ahead, we see better products and manufacturing equipment — we see time and money saved in maintenance and replacements — all because of these nuts that have proved they hold fast even under grueling vibration — that are easy to put on and take off yet lock automatically anywhere on the bolt.

Our engineers, experienced in solving fastening problems both in peace and war, are ready to share their knowledge with you. They will gladly work with you and recommend the correct Elastic Stop Nut to meet your need.


LOCKED on bolt by the action of the gripping red collar
SEALED at top to protect working threads from corrosion
HOLDS nut thread against bolt thread — prevents axial play
FITS any standard bolt. Made in all sizes and types

ELASTIC STOP NUTS

Lock fast to make things last

ESNA

ELASTIC STOP NUT CORPORATION OF AMERICA
UNION, NEW JERSEY AND LINCOLN, NEBRASKA

Mass Production Starts On Consolidated's P4Y-1

With mass production on the P4Y-1, Consolidated-Vultee flying boat, underway at the company's New Orleans plant by the end of this year, a new anti-submarine plane enters the battle of aircraft versus sub.

Produced by the Navy, the flying boat which was test flown in 1939 is described as a high wing monoplane flying boat with two engines, twin tail and retractable wing floats. Its 2000 h.p. engines develop speed in excess of 160 miles per hour.

For the past several months engineers have been breaking down construction on fuselage and tail for assemblies and subassemblies, utilizing fabrication lessons learned in producing the Liberators.

Instruments and controls are grouped so that a flight engineer may or may not be included in the crew of pilot, co-pilot, radio operator and navigator. Armor plate protection is provided for all personnel.

Aft of the flight deck is the depth bomb compartment with bombs attached to two cars or carriages running on tracks from the interior of the hull to the under surface of the wing inboard of the engine nacelles. Operation is electrical.

The new thermal anti-icer, perfected on this and other models produced by Consolidated-Vultee under the supervision of the National Advisory Committee for Aeronautics, will be used on the plane.

Credit for design goes to I. M. Laddon, executive vice president; Harry A. Sutton, director of engineering; C. B. Carroll, then project engineer, and practically the entire engineering department.

The following are the specifications: Navy designation: P4Y-1; Manufacturer's designation: Model 31; Engines, two Wright R-3350, 2000 h.p.; Wing span, 110 ft.; Length, 74 ft., ½ inch; Height, over tail, 25 ft., 1 7/16 inches with deck line level; Gross Weight, 46,000 pounds (Overload 48,000); Number of crew, seven; Cruising speed, more than 160 miles an hour; Duties, anti-submarine patrol boat flying.

Bendix, Ltd., Announces Promotions

"Streamlining" of Bendix Aviation, Ltd., of North Hollywood, Cal., has been announced by Palmer Nicholls, president, who said the action was taken in the interests of greater wartime efficiency.

Named responsible for management of Bendix operations was Mel Burns, vice president, who has been associated with Nicholls in various enterprises over the past 14 years.

Bert Hemingway moves up from manager of radio sales to staff executive along with J. R. Haney, who has been acting in such a capacity.

Sales of both radio-electrical equipment and hydraulics are consolidated under R. C. Fuller, who previously had been in charge of the hydraulic line.

Nicholls recently was elevated from vice president to president of the company and made a member of the administration committee of the parent concern, Bendix Aviation Corp.

AWPC Names Manufacturing Committee

With the objective of increasing aircraft and other war production through more refinement in manufacturing processes, Aircraft War Production Council, Inc. (West Coast), has set up a Manufacturing Committee.

F. W. Conant, vice president-manufacturing at Douglas, is chairman of the new group, which will act "as a policy body to coordinate the activities of all other groups concerned with various phases of manufacturing and production." H. E. Ryker, executive vice president in charge of manufacturing at Vega, is vice chairman. His particular responsibility will be the operation of the materiel section of the Committee, which will be concerned with a steady flow of materials to warplane producing plants.

All ideas for increasing production will be made available to the Council's eight members, as well as to all other war industry plants. Other section chairmen include: plant production, R. A. von Hake, vice president-manufacturing at Lockheed; outside production, C. W. Perelle, production vice president at Consolidated Vultee; and government reports, Gage H. Irving, assistant to the general manager at Northrop.

The P4Y-1: This is Consolidated-Vultee's new flying boat, which is expected to be a threat to Axis submarines. It carries a crew of seven and has a cruising speed of 160 mph.

Stricter CMP Control Over All 'B' Product Materials Proposed

A proposal to reduce the CMP list of "B" products to 22 has been shelved in favor of a "Special B" procedure, according to latest information in Washington. Aircraft manufacturers objected strenuously to any changes in CMP believing it would slow up production and place additional work on prime contractors.

Under the proposal sub-contractors would operate as "Secondary A" consumers obtaining material through the claimant agencies instead of through WPB's industry divisions. If the "Special B" plan is effected, consumers of B products who manufacture aircraft parts will present requirements directly to WPB instead of through the claimant agencies, which will allot materials and schedule them as "Special B" products. This will permit closer control over materials going into B products and at the same time will correct present confusion which often causes sub-contractors to receive material too late.

WPB vice-chairman J. A. Krug believes it is essential to exert closer control over materials going into B products. He charges there have been severe leakages and that 30 to 35% of controlled materials were being consumed by manufacturers of B products instead of the 10% allotted them under CMP. "This consumption must be pushed back to 10%," he said, "and, also some new control must be instituted to prevent alleged maldistribution to B consumers."

Representatives of the aircraft industry and B producers agree both in their disapproval of the proposal and in their contention that the allegations of "leakages" were erroneous. They say that there has been some difficulty in establishing relative preference among orders of B producers and that as a result some B producers may have exaggerated requirements in order to be certain of filling orders. But they deny there has been any planned duplicity.

Says Auto Dealers Will Sell Planes

The postwar automotive dealer will be a large-scale transportation merchant with automobiles, trucks, airplanes, motorcycles, bicycles and tractors for sale, in the opinion of R. D. Hilty, vice president in charge of dealer and export sales of Mack International Motor Truck Corp. Hilty is pre-testing plans for postwar dealer activity. The successful automobile dealer following the war will be the present day exclusive passenger car dealer or repair shop owner who has discovered the mistake of putting all his eggs in one basket, he said.

CLEAR OBJECTIVE

Rain or Shine

Marquette

All-Weather Windshield Wiper

• 'Round the clock, the bombing of our enemies must continue. In rain and sleet, the Marquette Windshield Wiper provides clear sight for pilot and bombardier, an important factor in the fight to Victory!

The Marquette

METAL PRODUCTS COMPANY

Cleveland • • • • Ohio

Manufacturing Personnel

Wells Simonds

Bert Conway, recently with General Motors Corp., has been named manufacturing coordinator for Aviation Corp., New York, N. Y., to work under **Ira J. Snader**, vice president of manufacturing, with offices in Detroit.

At Ryan Aeronautical Co., San Diego, Cal., **Oliver Fraser, Jr.**, has joined the company as industrial engineer, to make special studies and recommendations, and **W. Frank Persons**, recently with Consolidated Vultee Aircraft, has become head of Ryan's newly-organized industrial relations department. (See p. 38.)

Ralph O. Proctor, formerly San Diego office manager of War Production Board, has joined the executive staff of Malabar Machine Co., Los Angeles, Cal. as chief field engineer and assistant to the general manager.

Morgan C. Monroe has been promoted from assistant to full industrial relations director at the Indiana division of Republic Aviation Corp., Farmingdale, L. I., N. Y.

A. R. Johnson, formerly associated with the Guy F. Atkinson Co.-Geo. Pollock Co., Long Beach, Cal., has been appointed as sales and engineering representative of Young Radiator Co., Racine, Wis., in certain California and Nevada territory, with offices in Long Beach and Los Angeles.

Lee Schoenfeldt, former economist and manager of commercial research for General Electric, has become assistant marketing director in the Radio Division of Bendix Aviation Corp., Detroit, Mich., with offices in Baltimore.

Robert R. "Bob" Nadal, Lt. j.g. USNR and general sales manager of Culver Aircraft Corp., Wichita, Kan., is now in basic training in the Aviation Volunteers Program in Georgia.

Conway Fraser

John Easton, formerly chief of the technical development division of Civil Aeronautics Administration, has joined Whiting Corp., Harvey, Ill.

W. C. Deeds, long experienced with many industry firms in production supervision, has joined the executive staff of Fairchild Engine and Airplane Corp., New York, N. Y., to supervise production in its Duramold Division's New York plant.

J. R. Allen, formerly administrative engineer, has been appointed assistant chief engineer for Simmonds Aerocessories, Inc., New York, N. Y.

Galbreath Swanstrom

Ben O. Howard, recently assigned to the company's contract sales division under vice president **John M. Rogers**, has been appointed an assistant to president **Donald Douglas** of Douglas Aircraft Co., Inc., Santa Monica, Cal., concerned with all technical and flight problems of the company and of its airline customers.

C. P. Shropshire, traffic manager of the Tennessee division of Consolidated Vultee Aircraft Corp., San Diego, Cal., has returned from a special assignment in the traffic and transportation section of U. S. AAF.

Sandemar Hanley

E. A. Swanstrom, at one time head of Elastic Stop Nut Corp. of America, Union, N. J., has been elected president and general manager of the newly-formed Penn Engineering and Manufacturing Corp., Doylestown, Pa., and **B. C. Sandemar**, formerly chief engineer at ESNA, has been elected vice president and chief engineer of the new firm. Production is scheduled to start in September on nuts and aircraft fittings.

Thomas F. Hanley, treasurer and a director of the company, has been appointed general manager of Dowty Equipment Corp., Long Island City, N. Y.

J. Charles Galbreath has been elected vice president and continues supervision of the contract department, and **Berado Pereze-Fraga**, formerly traffic representative of Pan American in Cuba, has been appointed to the export department of Plomb Tool Co., Los Angeles, Cal.

Rex B. Beisel, formerly acting general manager, has been elected general manager of the Chance Vought Aircraft Division of United Aircraft Corp., East Hartford, Conn.

Major Daniel Simonds, chairman of the board of directors and president, Simonds Saw and Steel Co., Aircraft Armor Division, New York, N. Y., and Fitchburg, Mass., has been commissioned a Lieutenant Colonel in the United States Army.

John E. Wells, formerly an executive in the Muskegon, Mich., branch of Manning, Maxwell and Moore, Inc., Bridgeport, Conn., has been appointed advertising manager of Aviation Corp., New York, N. Y., with offices in Detroit.

William A. Cooke has been named a vice president of Aircraft Accessories Corp., Burbank, Cal., and continues in charge of industrial relations at Burbank plants. (See also pages 68 and 75.)

Easton Nadal

Persons Monroe

Schoenfeldt Deeds

Maker of Air History—

The Boeing Flying Fortress

Assembling a harness for the B-17 in the Boeing plant. Belden wire is used.

Approximately five miles of wire are used in a Flying Fortress. Every connection is inspected by experienced examiners.

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A familiar figure on battle fronts from the Bering Sea to the Mediterranean or the South Pacific, the Boeing Flying Fortress has provided a perfect platform for wonderfully accurate, high altitude precision bombing. Since Pearl Harbor, the famous B-17 has constantly made the "news" with amazing feats of stamina and heroism.

With production more than quadrupled—and an ever increasing demand for more—Boeing Aircraft Company has maintained in all detail its high standards for workmanship and materials. And, here along with thousands of other service-tested parts, Belden wire goes to war.

Back of Belden aircraft wire is a lifetime of experimenting and testing—collaboration with aircraft engineers since flying was in its infancy. This vast experience makes possible the Belden wire that meets today's needs.

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Starter, Lighting, and Instrument Cables √ √ √ SPARK PLUG WIRES

Long-Range Airport Problem Needs Study

Terminal Facilities Separation Aspects Analyzed by Writer

By E. J. FOLEY

TODAY'S thought and talk on the design of long range transport aircraft and the accent-to-be upon long-range transport of passengers and cargo by air in the postwar era must be further supplemented.

We need some sound study on the subject of long-range airports and terminal facilities as distinguished from our present "units."

Foley

The dominant school of thought which we have encountered in our conversations, is in favor of the separation of facilities on the basis of "commodity" carried. They propose passenger terminals and cargo terminals, separate and distinct. In many respects, the necessary features of either of these installations appear in both and accordingly, we do not enthuse over this extensive duplication of facilities.

Conversely, it may be said that the separation, which we support, based upon range-of-operation considerations does not represent the ultimate in economy insofar as duplication is concerned. While present facilities may be wholly adequate from a physical dimension standpoint for the short-range operation which will continue and grow, we have no assurance whatsoever that they will be physically able to meet the demands resultant upon expansion of long-range movements. Therefore, our proposal appears to have some initial merit over the "commodity" basis.

The "range" approach to the problem may have a further advantage in giving us a fresh starting point from which we may proceed with the development of the science of airport design and functional facility layout. We repeat a previous thesis: there is much more to sound airport design than attractive architecture and dimensional adequacy.

Buttoning up our general thinking on the subject, we will sketch an example illustrative of the future picture, as we see it. The new New York airport, Idlewild, could be made a definite long-range theater of operation. It is contemplated that this area will be developed for both flying boat and landplane operation, as is reasonable for the potential purpose. The present La Guardia Field could be revised, as and if necessary, to accommodate all the short-haul travel in and out of the metropolis. This proportioning would most probably put all of the international operations at Idlewild with the exception of any short operation to our neighbor, Canada, which might remain at La Guardia.

This division of facilities will entail the single major problem of transportation of passengers, cargo, etc. between the two sites for purposes of interconnection. Here is one spot where our proposal definitely involves more in the way of expense and complication than the commodity separation. If due consideration still justifies thought upon our suggestion, the physical means by which we shall carry out this link, air or underground, is a simple mechanical detail.

Specifically, we think it appropriate to build our concept of a long-range airport around a "family" of airplanes. No implication is intended which will limit the airport to one specific model because such a limitation would be almost impossible even if it were in any way desirable. However, of the landplane type, we visualize comparative standardization, for a reasonable period of time, upon a four-engine, mid-wing craft, tricycle geared. This determination, or more appropriately assumption, provides us with a relatively standard nose-end plan-profile.

From this plan, we can determine pertinent dimensions which will permit us to design a "nose-loading" dock. By simply having extension "leaves" on this dock, passengers and/or crew may be loaded through side doors, if provided (preferably forward on the side of the cabin). One of the distinctive advantages of the nose loading dock is the potential accessibility of the engine-propeller-nacelle combination from the dock itself, by means of side platforms.

The use of drop leaves, or some other mechanical technique such as is employed to vary the area and access locations on subway platforms should give us the flexibility of operation to allow for differences in wing height, engine spacing, passenger extensions, and so on. Naturally, a portable partition should separate the work area of our dock from the passenger and crew loading strips. This functional division, would, in effect, give us two small auxiliary shops at each loading dock, one for each wing, left and right. The full utilization of these facilities could heighten maintenance efficiency considerably over what we may expect with the necessity of shunting stands and ladders around the area.

If we want to carry this concept further, we can think of a double deck, midwing aircraft, equipped with nose loading-doors as being eminently suited for operation with such a dock arrangement. With an aircraft so divided internally, we could use the lower space for freight or cargo, and the upper for crew and passengers. The efficient loading of both levels would simply dictate that our terminal unit be equipped with a two-level dock; the upper for passenger loading and the lower for cargo. This arrangement would in no way restrict the flexibility of our set-up for slight variations in level, nacelle spacing, etc.

This arrangement would keep passenger handling and cargo handling on different levels which is a normal, logical order. The loading of cargo through the nose door would eliminate a major snarl presently unavoidable because of the 90-degree turn required in side loading. We see no reason why a cantilever-type conveyor device as is used in charging furnaces, could not be used for loading and unloading.

One problem involved in a nose loading arrangement has probably already occurred to everyone. Since the aircraft span is its major dimension, our proposal might appear to require the wider spacing of loading docks to accommodate a wing-tip to wing-tip arrangement. The best answer to this problem, as we see it, is the slight "crowning" of every other dock apron. By such a slight rise, we can stagger the aircraft wings so that a wing-over-wing condition exists almost as far inboard as the outboard nacelle.

For the germ of this idea, we must thank George Bock, research engineer for Herb Anderson's Aviation Division of Whiting Corp. Our "personal opinion poll" places this organization at the top of the heap as aircraft servicing and handling equipment experts.

In addition to the above fundamental facility design consideration, we want to tie in a few comments on the maintenance of large flying boats. It is not our role to judge the future of the flying boat as a transport medium, but it definitely deserves some consideration in our thinking. If operation of a flying boat of more than 50 tons gross weight is contemplated, we think it impractical to plan on periodically "beaching" it. Such a craft is almost perfectly wed to its element, water, and the precautions and time-consuming procedures attendant to ground handling are so formidable as to discourage the operation.

Marine railways and floating dry docks are two generally recommended solutions. Of the two, we favor the latter. But doing a little "imagineering" as Alcoa calls it, we wonder how practical it would

Packaging: In the recent New York City's Packaging Exposition, this development, Lumarith laminated Ordnance paper, was displayed. Besides being proof against water, grease, oil and even germs, it is said that the Lumarith plastic lining does not dry out, shrink or become brittle, is not affected by extremes of humidity or temperature, protects against mold and is non-corrosive.

Lumarith is the product of the Celanese Celluoid Corp., New York.

Brake Tester: Landing speeds and weights of aircraft are simulated in this specially constructed dynamometer which tests airplane brakes at the Bendix Products Division of Bendix Aviation Corp. at South Bend, Ind. The energy wheel is seven feet in diameter and is adjustable from a weight minimum of 6,684 pounds to a maximum of 37,186 pounds. The dynamometer can duplicate landing speeds up to 120 miles per hour.

be to combine the functions of bridge and marine aircraft base. It appears hardly feasible to justify the construction of a bridge wherever we may want a marine base, so why not this time let Mahomet go to the mountain? Our picture of the final structure includes three of the bridge supporting columns as central, functional elements of the design, and the useful level of the bridge proper possibly used as a roof level to be extended by cable-supported or cantilever "roof plates." In turn, curtain-type doors could be suspended on all four sides as necessary closure. The three columns, we propose to use as a passenger terminal, maintenance center and office building. The center column would, of course, be the maintenance structure.

We hope it does not tax your imagination to visualize the passengers arriving by "limousine" on the true bridge level, being lowered through the terminal column and "processed" as they progress. Finally reaching a waterlevel dock, they board the flying boat and are ready for departure.

Inside our curtain doors and centered around the service column, we could have "locked" dry docks with bulkhead supports for aircraft fixation and hull bottom maintenance. Component servicing would be done in individual shops in the service tower and servicing on the aircraft proper could be facilitated by means of balconies or adjustable platforms around the drydocks.

Our third column could house the operations and administrative offices together with the appropriate organizational appurtenances. Access to all facilities would of necessity be by means of the bridge proper or by a "bus-boat." Employe's parking facilities would obviously have to be at an adjacent shore location.

Whether the objections of expense and the like would rule out any such development is only determinable upon a much more detailed analysis than we are able to give in these few words. We do feel the project possible and something to be studied by operators contemplating the long-term operation of very large flying boats.

In the foregoing paragraphs we have indicated our opinion on the functional division of airports and facilities between short-range and long-range travel. Developing our concept, we have added two basic design features appropriate to such a long range base for land planes and flying boats.

May we add the thought that the inclusion of separate maintenance airports in our scheme of airline facilities (as suggested here months ago) would centralize a considerable percentage of our personnel and most of our facilities and so, eliminate considerable duplication.

Space denies us a more detailed analysis, but before closing we feel obliged to quote a friend's remark on hearing our description of the "bridge hangar." He said: "It's ideas like that that foreshorten the flying boat's future by decades." We hope you will be equally frank, but more analytical in your comments on all these ideas.

Tests Prove Nylon Airplane Tire Reduces Hazard, Claim

A new airplane tire, fabricated with nylon cord instead of the usual cotton or rayon, designed to reduced hazards of high landing speeds and to save weight on military planes, has been developed by the aeronautics division of B. F. Goodrich Co., Akron, O.

Methods of using nylon and fewer plies of rubberized cord are employed, company explained, and "in addition to providing the high bruise resistance and all-around landing strength demanded by today's far-flung operations . . . reduce weight and make the new tires especially valuable to the air forces."

Precision Gauge Blocks

Savage Tool Co. introduces this new, smaller case for the set of 81 Doall Gauge Blocks. The precision blocks have heretofore been offered in a large case which carried them all flat; in this case, ¼ the size, the blocks are placed at a slight angle so that the etched size marking near

the top of each block can be readily seen. The proper position for each block in the case is marked corresponding to the size mark on the block.

The box is made of kiln-dried solid walnut, properly treated to insure against acidity in the wood affecting the highly polished surfaces of the blocks. Actual case measurements are 11" x 4½" x 2".

Safety Record Claimed

A low rate of 1.7 lost-time accidents per million man-hours worked in May in North American Aviation's Kansas City, Kan. plant is claimed as "a record for the aircraft industry," since it is much lower than the nine accidents per million man-hours worked, the average for the industry during January and February, 1943.

One of our Navy's Lighter-than-Air-ship Hangars. Byrne motorized hangar doors, especially engineered for these mammoth openings as high as a 12-story building will operate swiftly and dependably at the flick of a switch.

BYRNE doors, inc., has branches in Washington, New York and San Francisco. Consult Byrne engineers freely about your specific problems. See our catalog in Sweet's.

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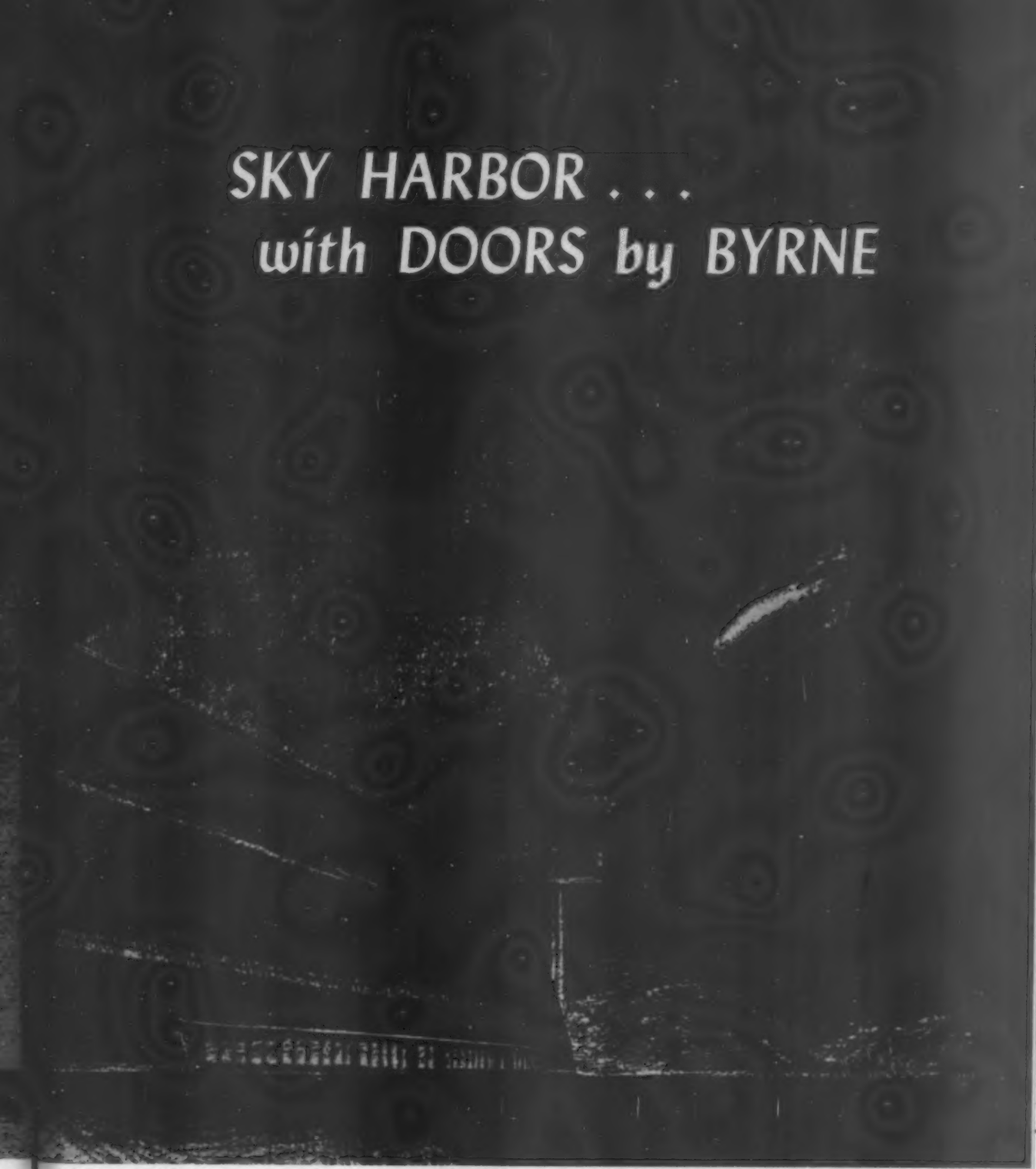

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Manufacturing Personnel

(Continued from page 62)

Wendt Tibbitts

Frank E. Caldwell, formerly with Northwest Airlines, has been made service manager for Pump Engineering Service Corp. (Borg-Warner), Cleveland, O., with duties including special field assignments.

Promoted to vice presidencies at Taylorcraft Aviation Corp., Alliance, O., are **Robert H. Wendt,** chief engineer, who has charge of all engineering, research and experimental activities, and **Kenneth W. Tibbitts,** production manager.

George M. Muschamp has been appointed vice president in charge of engineering and **Paul L. Goldstrohm** vice president in charge of production at the Brown Instrument Co., subsidiary of Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

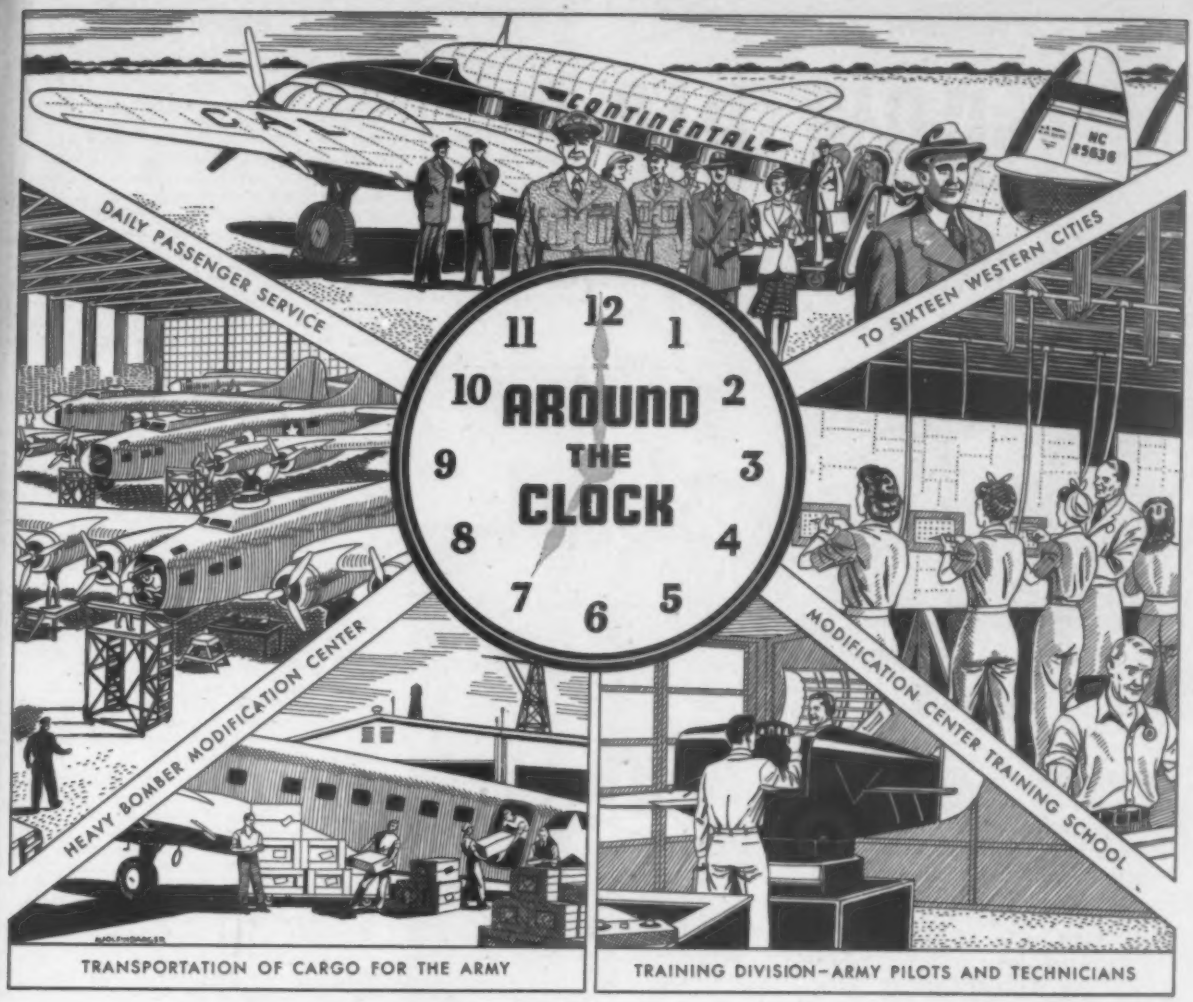
Gordon C. Sleeper has been appointed controller of material and supplies at Republic Aviation Corp., Farmingdale, L. I., N. Y., and will continue as an assistant to the president.

At United Aircraft Corp., East Hartford, Conn., **Raycroft Walsh** has been named to the board of managers of the Manufacturers Association of Hartford County, Conn. In the Hamilton Standard Propellers Division, engineering department, **Edwin D. Eaton** has become administrative engineer, **Murray C. Beebe,** chief development engineer, **Thomas B. Rhines,** chief production engineer, **Glenn T. Lampton,** chief experimental engineer, **Charles M. Kearns, Jr.,** chief research engineer, and **Charles B. Conwell,** former project engineer, senior engineer.

Robert D. Cavanaugh, vice president-Finance of Adel Precision Products Corp., Burbank, Cal., has been elected to the board of directors of Avion, Inc.

J. W. Hennen, assistant division manager at New Orleans for Consolidated Vultee Aircraft Corp., has been named division manager at Nashville, succeeding **Robert McCulloch,** who has resigned to return to the West Coast. **"Cliff" Knox** has been transferred from the San Diego division, where he was assistant plant engineer, to Vultee Field, Cal., as plant engineer.

William Stern, member of the board of directors of Northwest Airlines, Inc., has been named assistant to the president of Northwestern Aeronautical Corp., St. Paul, Minn.



CONTINENTAL WORKS FOR VICTORY

Day and night–more than 1700 strong–the men and women of Continental work unceasingly at their vital wartime jobs. A segment of America's might, these soldiers on the home front perform their individual tasks with speed and efficiency–and they're proud of their privilege to help in winning the war.

CIVILIAN FLYING IN WARTIME

On most scheduled daily flights there are seats available for civilian travel. Now, more than ever, it is essential to speed production. Increase your working day. Fly Continental . . . *America's Fastest!*

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can an Air Express shipment be?

AS TO WEIGHT, your shipment may be a pound or a ton and up, so long as it fits in a plane. **AS TO SIZE,** you will be safe in following dimensions shown underneath the illustration.

However, large shipments can often be broken into a number of smaller units. When this is impossible, consult your local Railway Express Agency, who can often make special arrangements for handling larger shipments.

FOR FASTEST DELIVERY, ship early, as soon as package is ready. PACK COMPACTLY but securely, to cut AIR EXPRESS costs.

Maximum dimensions for AIR EXPRESS *packages: Length, 35 to 49½ inches; width, 44 inches; depth, 18½ inches. Break larger shipments into smaller units whenever possible.*

Air Express Speeds War Program

TODAY, AIR EXPRESS not only serves the home front but is also working hand in hand with the Army and Navy to supply our fighting fronts throughout the world.

TOMORROW, AIR EXPRESS will girdle the globe in international peacetime commerce . . . to bring *all* foreign markets to the doorstep of American business.

AIR EXPRESS
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Phone RAILWAY EXPRESS AGENCY, AIR EXPRESS DIVISION
Representing the AIRLINES of the United States

WRITE for our quick-reference handbook on "How to Ship by AIR EXPRESS During Wartime." Dept. PR-2, Railway Express Agency, 230 Park Avenue, N.Y.C.

Financial

CONSOLIDATED VULTEE AIRCRAFT CORP., San Diego, Cal., has announced dividend of 50c a share, common, in addition to the previously announced payment of 50c on May 15.

IRVING AIR CHUTE CO., Buffalo, N. Y., has reported net profit for 1942 as $316,835, equal to $1.60 a share, compared with $371,537, or $1.88, in 1941.

HIGGINS INDUSTRIES, INC., New Orleans, La., for 1942, had net income of $1,698,691 on sales of $31,682,259, equal to $8.44 each on 200,200 shares, common. This compares with 1941 net of $785,643 on sales of $10,214,587, or $3.88 each on 200,100 shares, common. In 1942, $4,234,750 was provided for income and excess profits taxes.

BENDIX AVIATION Corp., Detroit, Mich., directors have announced from New York dividend of 75c a share on capital stock, payable June 30 to holders of record June 19.

HAYES INDUSTRIES, Inc., Jackson, Mich., has announced for the quarter ended April 30 net profit of $353,320, equal to $1.06 each on 333,000 shares of capital stock, compared with $318,991, or 96c, for the quarter ended Jan. 31. In the last quarter, provision of $1,413,110 for Federal income and excess profits taxes was made.

CONTINENTAL MOTORS Corp., Muskegon, Mich., directors have declared dividend of 15c a share, payable June 25 to holders of record June 4. Holders of the old no par value and the old $10.00 par value common capital stock, issued and dated prior to Oct. 25, 1935, are advised that they will be required to exchange their certificates, share for share, for the present $1.00 par value before receiving this dividend.

THOMPSON PRODUCTS, Inc., Cleveland, O., consolidated balance sheet (Exclusive of Thompson Aircraft Products Co.) for the quarter ended March 31, shows assets of $26,340,527, and current assets of $19,406,179, including cash, $3,023,985, and notes and accounts receivable—trade, less reserves, $7,958,933. Current liabilities totaled $9,676,145, including accounts payable—trade, payrolls, etc., $4,670,718. Earned surplus was $8,685,079.

COLONIAL AIRLINES, Inc., Jackson Heights, N. Y., reported a net income for 1942 of $108,462, or 42 cents a common share.

ARO EQUIPMENT CORP., Bryan, O., following directors meeting, ordered payment of stock dividend of 100%, payable in common stock to holders of record July 15, after listing under Securities and Exchange Act, expected to be completed about August 5. Directors also recommended changing of par value from $1 to $2.50, thus capitalizing "a substantial part" of surplus.

BORG-WARNER CORP., Chicago, Ill., directors have declared dividend of 40c, common, payable July 1 to holders of record June 17.

LEAR AVIA, Inc., Piqua, O., has completed arrangements whereby its capital stock will be purchased by Consolidated Dearborn Corp. of Chicago. Consolidated was incorporated in 1939. It acquired all of the assets of Lawbeck Corp. and later was merged with Manhattan-Dearborn Corp. Its December 31, 1941 statement showed outstanding common stock $337,084, an RFC loan of $550,000 and outstanding debenture bonds $3,184,000. Capital surplus was $547,448 and other surplus $424,359. Its cash was $105,560. Investment in and advances to subsidiary was $4,213,436.

HAYES INDUSTRIES, Inc., Jackson, Mich., report net profit for six months ended Jan. 31, 1943 of $452,530, subject to audit and renegotiation provisions and after charges and provision of $1,810,300 for Federal income taxes. Net is equal to $1.36 a share (par $1) on the 333,000 shares of capital stock. Net sales totaled $10,206,894.

BLAW-KNOX Co., Blawnox, Pa., directors have declared interim dividend of 20c, payable June 28 to stock of record June 4, as announced.

Net Revenue of Airlines Jumps 191% Within Year, Data Shows

Net operating revenue in March for the 18 air carriers, including All American and Hawaiian, reached a total of $2,796,300, a 101% increase over the same month of last year. Additional figures covering operating expenses and revenues for the month of March 1943, according to CAB records, follow:

	Amount			Cents Per Revenue Mile	
	Mar. 1943	Mar. 1942	Percent Change	Mar. 1943	Mar. 1942
Operating Revenues					
Passenger	$6,705,800	$6,518,900	+ 2.8	81.10	56.75
Mail	2,053,200	2,146,400	— 4.4	24.83	18.69
Express and Freight	741,900	365,600	+102.8	8.97	3.18
All Other	296,000	278,400	+ 6.3	3.58	2.42
Total	9,796,800	9,309,300	+ 5.2	118.48	81.04
Operating Expenses	7,000,600	7,918,000	— 13.1	84.66	68.93
Net Revenue from Operations	2,796,300	1,391,300	+101.0		
Revenue Miles Flown	8,269,000	11,486,700	— 28.0		

For the year ending March 31, 1943, the net revenue from operations for all the 18 airlines rose sharply from $10,216,400 to $29,760,300, or 191% notwithstanding an actual decrease of $675,600 in the total amount paid to the airlines for the carriage of mail. The greatest increase in revenue for the year was caused by express and freight which rose from $3,445,700 to $7,814,100 or about 127%. Additional figures covering operating expenses and revenues for the year ending March 31, 1943 follow:

	Amount 12 Months Ending			Cents Per Revenue Mile 12 Months Ending	
	Mar. 1943	Mar. 1942	Percent Change	Mar. 1943	Mar. 1942
Operating Revenues					
Passenger	$ 76,239,100	$ 74,620,500	+ 2.2	74.39	53.54
Mail	22,992,000	23,667,600	— 2.9	22.43	16.98
Express and Freight	7,814,100	3,445,700	+126.7	7.62	2.47
All Other	2,901,200	2,326,200	+ 24.7	2.83	1.67
Total	109,946,400	104,060,000	+ 5.5	107.27	74.66
Operating Expenses	80,186,100	93,843,600	— 14.6	78.23	67.33
Net Revenue from Operations	29,760,300	10,216,400	+191.0		
Revenue Miles Flown	102,495,200	139,369,300	— 26.5		

Airline Load Factor 88.8% in April

During April, revenue passengers occupied more than 88.5% of available airline seats, compared with 68.1% of occupancy, Civil Aeronautics Board reports in presenting comparative results of April, 1943 and 1942 operations. In the 1943 month, the airplanes also completed 97.3% of their scheduled mileage.

The major figures for April and for the 12 months ending with April were:

	April 1943	April 1942	12 Months Ending April 30, 1943	12 Months Ending April 30, 1942
Revenue miles flown	8,427,582	11,429,135	99,501,185	140,058,048
Revenue passenger miles	131,737,268	149,985,535	1,398,363,094	1,528,307,067
Mail pound miles	5,754,650,998	3,051,195,286	51,906,115,261	29,690,585,485
Express pound miles	2,769,444,650	1,624,322,427	27,239,192 281	13,853,555,983
Revenue passenger load factor (percent of seats occupied)	88.56	75.66	79.55	62.43

Studebaker President on UAL Board

Paul G. Hoffman, president of Studebaker Corp., was elected to the board of directors of United Air Lines Transport Corp. at the regular directors' meeting in Chicago June 28.

Hoffman, a native of Chicago and now a resident of South Bend, Ind., has been associated with the Studebaker Corporation for the past 32 years, and has been president of that company since 1935.

Since 1941 the Studebaker Corporation has been a manufacturer of aircraft engines and Hoffman's election to the Board of United Air Lines is recognition of the present close affiliation between the automotive and aviation fields, President W. A. Patterson said.

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SYMBOL OF SAFETY

The name "IRVIN" on the harness means the chute is produced in an Irvin Factory with over 20 years of experience and skill in chute-making.

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The man behind the Cherry Rivet gun really saves time by using Cherry Rivets wherever it would be difficult to use a bucking bar. And he turns out a better job . . . thanks to the positive mechanical action which is an important feature of the Cherry Rivet.

To the engineer these rivets mean even greater advantages. He can now design up to efficiency rather than down to a manufacturing limitation. The high shear and fatigue values and the excellent shank expansion of Cherry Rivets eliminate the necessity of designing away from blind spots in both primary and secondary structures.

Get the complete story on Cherry Rivets. Sizes, styles of rivets, application techniques and riveting tools are fully described in the Handbook A-43. Request your copy from Dept. A-111, Cherry Rivet Company, Los Angeles, California.

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LOS ANGELES, CALIFORNIA

Down the Manufacturing Line

The first aviation plant in the U. S. manufacturing engine and propeller parts to make 100% use of women in its basic manufacturing operations is Northern Aircraft Products Division of The Aviation Corp. at Toledo, O., it was revealed last fortnight when manufacturing was started. As Northern Aircraft builds its production up to maximum capacity, the 100% use of women in basic operations now in effect will be maintained, says William F. Wise, executive v.p. of AVCO. Men will be employed only as job-setters, supervisors and instructors. Only about 20% of the women have had previous factory experience. Wise said the success of the women in handling even the most exacting precision machining operations at Northern has completely justified the decision.

●

The series of ads on North American B-25 bombers in action in various war theatres is causing considerable favorable comment . . . They were prepared by Doc Geissinger of B. B. D. & O. in Los Angeles. . . . Grand Rapids Industries, Inc., the Michigan furniture makers who banded together to produce aircraft, got the cooperation of the Air Forces in staging a Fourth of July flying exhibition to let 40,000 spectators, including their employes, see in action the planes for which they furnish parts—the CG-4A troop-carrying glider, the Stinson Sentinel and the Skyfarer. . . . They say that after the war the Skyfarer will be re-designed as a four or five-place "fool-proof, family plane", featuring simplicity and economy of operation.

●

Rohr Aircraft Corp. has leased the San Diego Country Club in Chula Vista to provide recreational facilities for employes . . . High finance for war-connected charities is the result of the Lockheed-Vega Employes Buck-of-the-Month Club which was instituted 15 months ago by workers in both plants. Each employe authorized a voluntary payroll deduction of $1 a month—thus avoiding repeated charity drives . . . Employe clubs engineered the whole plan . . . Bendix Aviation, Ltd. held the first war-time conference for company representatives from all parts of the country July 5 to 9 at its North Hollywood plant with Richard Fuller, contract director, in charge.

●

Bankers, milkmen, accountants, advertisers and even movie stars are working the double duty "Victory shift" at the Inglewood, Cal., plant of North American Aviation. . . . Regularly employed in non-essential industries, they work from 6:30 to 11:30 nightly except Saturday and Sunday fabricating plane parts and assembling B-25's and P-51's. . . . Each "Victory shift" employe is given five nights pre-factory training at regular wages.

●

Government, usually accused of being a time waster, gave the accusation the lie when the National Advisory Committee for Aeronautics dedicated its new laboratory at Wright field . . . NACA held the ceremony down to 15 minutes . . . In contrast, Goodyear Tire & Rubber Co., dedicating its new $1,350,000 laboratory at Akron, took three days for dedicatory programs . . . It was productive, though, of many valuable revelations of technical progress in industry and aviation . . . As Glenn L. Martin was addressing an outdoor gathering of thousands of his employes at the Baltimore plant, the loud speakers suddenly failed . . . Guess who the handy man was who stepped forward from the speaker's platform to fix them? . . . None other than America's most famous "monkey wrench mechanic," Charles F. Kettering, president of the National Inventors' Council, who was a Martin guest at the moment.

C.G.

War Dept. Lists Aviation Firms Obtaining $1,000,000 'V' Loans

Supplied to Congress by the War Dept., a list of firms having V-loans (made by banks and guaranteed by the government) of $1,000,000 and over, included the following in the aircraft field:

	Amount of Loan	Percentage of Government Guarantee
Solar Aircraft Company	3,000,000	(1)
Thompson Aircraft	18,000,000	95
Cleveland Graphite Bronze Co.	5,000,000	75
Cessna Aircraft Company	20,000,000	90
Fleetwings, Inc.	9,000,000	90
Northrop Aircraft, Inc.	17,000,000	95
Ampco Metal, Inc.	2,500,000	85
Embry-Riddle Company	2,000,000	90
Emerson Electric Manufacturing Co.	30,000,000	90
Western Electrical Instrument Corp.	6,000,000	85
Houdaille-Hershey	12,000,000	75
Square D Company	10,000,000	75
Lear Avia, Inc.	4,000,000	60
Electric Auto-Lite Company	17,000,000	65
Rogers Diesel & Aircraft Corp.	3,000,000	90
Buckeye Machine Company	1,000,000	75
Adel Precision Products Corp.	2,500,000	90
Plomb Tool Company	1,200,000	80
Young Radiator Company	1,200,000	90
Micromatic Hone Corporation	1,500,000	90
Cleveland Pneumatic Aerol, Inc.	12,000,000	100
Aero-Parts Manufacturing Co.	1,000,000	100
General Motors Corporation	1,000,000,000	90
Jacobs Aircraft Engineering Co.	6,000,000	90
Fairchild Aviation Corporation	5,000,000	90
Minneapolis-Honeywell Regulator Co.	15,000,000	80
Lockheed Aircraft Corporation	60,000,000	75
Vega Aircraft Corporation	30,000,000	90
Universal Moulded Products Corp.	2,750,000	90
Walter Kidde & Co., Inc.	10,000,000	90
Airesearch Mfg. Co. of Arizona, Inc.	1,[illegible]0,000	90
Interstate Aircraft & Engineering Corporation	1,[illegible]00	80
Kellett Autogiro Corporation	1,250,000	80
Perfect Circle Company	3,000,000	75
Bell Aircraft Company	60,000,000	90
Air Associates, Inc.	2,500,000	90
Warner Aircraft Corporation	1,000,000	90
The W. L. Maxson Corporation	5,000,000	50
Bendix Aviation Corporation	150,000,000	90
Airadio, Inc.	1,000,000	95
Continental Radio & Television Corp.	2,300,000	90
Raytheon Production Corporation	1,500,000	90
Northeast Airlines	1,500,000	90
Extruded Metals Defense Corporation	2,000,000	100
McDonnell Aircraft Corporation	6,000,000	90
Goshen Veneer Company	1,000,000	97
Pacific-Airmax Corporation	1,000,000	90
Ken-Rad Tube & Lamp Corporation	5,000,000	85
Barber-Greene Company	2,000,000	85
Chicago Metal Hose Corporation	1,000,000	85
Menasco Manufacturing Company	1,800,000	90
Cardox Corporation	2,700,000	85
Piper Aircraft Corporation	2,000,000	90
E. C. Atkins & Company	6,000,000	90
Higgins Industries, Inc.	3,500,000	90
Evans Products Co.	2,100,000	80
Aircraft Mechanics, Inc.	1,000,000	90
Cleveland Pneumatic Tool	12,000,000	90
Rohr Aircraft Corp.	5,000,000	90

(1) $2,000,000 at 90 per cent; $1,000,000 at 100 per cent.

Hamilton Engineers Reorganized

Hamilton Standard Propellers division of United Aircraft Corp. has reorganized its engineering staff, effective this month, according to an announcement by Erle Martin, engineering manager.

The reorganization has been effected to handle the introduction of new propeller developments and models into limited and general production. In addition it will utilize added facilities made available in East Hartford, Conn., by the recently completed test house office and temporary office building.

Five assistant engineers receive promotion under the new setup. Edwin D. Eaton becomes administrative engineer, Murray C. Beebe becomes chief development engineer, Thomas B. Rhines becomes chief production engineer, Glenn T. Lampson becomes chief experimental engineer, and Charles M. Kearns Jr. becomes chief research engineer.

Charles B. Conwell, former project engineer, will hereafter be designated senior engineer.

Did you forget to tell him what to do now?

●It's a fire-fighting axiom that the first 60 seconds of a fire are the most important. If something goes wrong then, you may have a real blaze on your hands.

Alert management, recognizing this, carefully trains its employees to fight fire. It picks key men in the plant, teaches them how different fires behave, how various extinguishers must be handled.

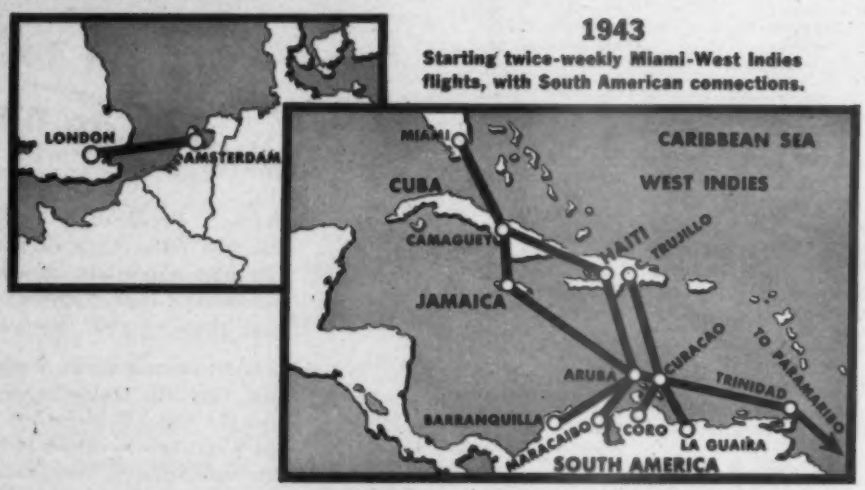
Authorities agree that *demonstrations* provide the best training. So Walter Kidde & Company has prepared a booklet—"How to Teach Fire-Fighting." It tells how to stage a fast-moving, interesting, instructive fire-class. Write for your plant's copy.

Walter Kidde & Company, Inc.
713 Main Street Belleville, N. J.

PROTECTS LIVES **Kidde**
HIGH PRESSURE GASES • FIRE PROTECTION

The Flying Dutchman Again Blazes an Air Trail

1919
Opened route from Amsterdam to London



1943
Starting twice-weekly Miami-West Indies flights, with South American connections.

Provides Vital New Link Between the Americas

Brings New York within 24 Hours of Curacao

They're off! K.L.M.'s highspeed, multi-engined airliners, timed to split-second schedules, soar from Miami out over the Caribbean. Fastest transports in the world, they're opening a new route which makes a hop from New York to South America *less* than a sun-to-sun excursion!

Normally flying all five continents, K.L.M. Royal Dutch Airlines have been old hands at pioneering since back in '19. Witness founding the West Indies Section in '34, following the first mid-Atlantic crossing ever flown. Maintaining a peacetime network of European air routes, with such global through-routes as Amsterdam to Batavia—9,000 miles away.

K.L.M. offers vast experience in safe navigation and expeditious handling of passengers and freight. For reservations or further information on this efficient new air service to the Caribbean, apply to K.L.M. Royal Dutch Airlines, 521 Fifth Avenue, or Holland-America Line, or their agents.

K. L. M. ROYAL DUTCH AIR LINES

World's Oldest Operating Transportation Airline

Member International Air Traffic Assn.

New Curtiss-Wright Engine Synchronizer Has Single Control

An automatic engine speed synchronizer, enabling pilots and flight engineers of multi-engined combat and cargo planes to obtain the desired engine speed for maximum efficiency and at the same time automatically synchronize all of the engines at this speed, has been developed by Curtiss-Wright Corp. Announcement of the development was made by George W. Brady, chief engineer of the company's Propeller Division, at the recent convention of the Aviation Writers Association in New York City.

"Synchronization is vital in multi-engine installations to reduce noise and vibration which cause excessive fatigue to crews and passengers," said Brady. "Through use of a single control knob, the pilot and flight engineer may quickly obtain needed synchronization, thereby allowing them to devote more time to carrying out their missions."

The conventional propeller control system, Brady explained, requires that the pilot manipulate four separate levers, one by one, in order to synchronize the engines. The knob control unit is far simpler and its weight and cost have been found comparable to standard types. This is possible, he said, because the mechanical connection generally required with individual constant-speed governors has been eliminated.

Manufacturing Personnel

Dr. J. J. Pyle, formerly group leader in charge of research and chemical development has been appointed chemist in charge of the plastics laboratories of General Electric Co., Schenectady, N. Y.

Theodore H. Affleck, veteran brake expert with Westinghouse Air Brake Co., has become a development engineer for Aircraft Accessories Corp., at the Burbank, Cal., division.

Stephen F. Hinchliffe and **Eldore E. Rosier** have been appointed as vice presidents at Doak Aircraft Co., Inc., Torrance, Cal., and **Nelson E. Grace, Sr.**, and **Leonard Comegys**, officers of the company, have been elected to the board of directors.

George P. Hill has relinquished his duties as treasurer and supervisor of "a number" of departments at Globe Aircraft Corp., Fort Worth, Tex., but continues as vice president and director. **Norman N. Olile**, comptroller and a director of the company, has succeeded Hill as treasurer.

Carl A. Frische has succeeded **Hugh Willis** as chief research director of Sperry Gyroscope Co., Inc., Brooklyn, N. Y. Willis is now general sales manager.

L. C. Goad, general manager of Eastern Aircraft Division of General Motors Corp., has been elected a vice president of the corporation.

Bernard A. Erickson, formerly with the Fort Worth division, has taken charge of the industrial engineering department in Consolidated Vultee's Tucson division.

Hans Lasker, formerly factory manager, has become works manager of the Farmingdale, N. Y. plant of Republic Aviation Corp., and **Henry MacDonald**, assistant factory manager, has been named works manager at the firm's Evansville, Ind. Plant. **Irving Keough**, formerly general superintendent at Farmingdale, has succeeded Lasker.

W. K. Cooper has been made vice president in charge of sales of Aviation Corp., with headquarters in Washington.

James Harger, formerly assistant to **C. P. Graddick**, director of air cargo for United Air Lines, has joined Lockheed Aircraft Corp. Burbank, Cal. as assistant manager of the industrial research division.

John R. Bangs, formerly at Cornell University, has been named general manager of industrial and personnel relations at Edward G. Budd Manufacturing Co., Philadelphia, Pa.

Sidney H. Webster of Bendix's Eclipse Aviation Division and **Edward W. Allen, Jr.**, Titeflex Metal Hose Co., Newark, N. J., have been elected vice president and secretary, respectively, of the Industrial Marketers of New Jersey.

PIONEER
These are Paratroopers without parallel — hell-divers, jumping jacks, loop-the-loopers! Versatile, tough and deadly, they're infantry and commandos all in one. These Allied paratroopers are the stalwarts who swoop to earth ahead of battle and fight it out until G.H.Q. receives the report "objective taken." Pioneer fool-proof and foul-proof parachutes are playing a big part in the offensive sweeps of these "sky-terriers". Pioneer parachutes are not only an instrument of safety — they're an instrument of offense!
PIONEER PARACHUTE COMPANY, INC.
MANCHESTER, CONNECTICUT, U. S. A.
CABLE ADDRESS: PIPAR
TELEPHONE: Manchester 4157

PAY-AS-YOU-GO
—And Like It!
801 ROOMS
from $4.00

With OUTSIDE LOCATION...
COMBINATION TUB & SHOWER...
CIRCULATING ICE-WATER...
FULL-LENGTH MIRROR...
AND FOUR-STATION RADIO

HOME OF THE Hawaiian Room
Hotel Lexington
CHARLES E. ROCHESTER, Vice-Pres. & Mng. Dir.
LEXINGTON AVE., AT 48TH ST., N. Y. C.

For Men Who Can Accept
Responsibility

Look To PARKS

Every Parks Air College graduate has been trained to think independently, to win and hold positions of leadership and responsibility.

Not only has he acquired necessary technical and mechanical skills, but has been thoroughly educated in basic principles as well.

Today, when men of the highest calibre are urgently needed, the preparatory training of every Parks graduate becomes especially valuable to you. A letter to Oliver L. Parks, President, will bring information on available graduates.

PARKS AIR COLLEGE, Inc.
East St. Louis, Illinois

Leading Aviation Stocks

New York Stock Exchange

	Week Ending June 26				Week Ending July 3			
	Sales	High	Low	Net Change	Sales	High	Low	Net Change
American Airlines	2,200	67¾	65¼	— ¼	4,600	71	67⅛	+2
Aviation Corp.	38,400	5⅛	4¾	+ ⅛	38,300	5¼	4⅞	...
Bell Aircraft	3,300	16¾	15	+ ¾	2,700	17	16⅛	— ⅝
Bendix Aviation	6,700	38½	36⅛	+1⅝	9,000	39¼	37⅞	+ ⅜
Boeing Airplane	10,300	17¾	16½	+ ½	14,400	19	17⅞	+ ½
Consolidated Vultee	11,900	17¼	16¼	— ¼	22,400	18½	17¼	+1¼
Consolidated Vultee pfd	900	23½	23¼	...	1,700	24⅜	23¾	+ ⅝
Curtiss-Wright	24,800	8½	8	...	22,400	8½	8¼	+ ¼
Curtiss-Wright A	2,700	22⅝	22¼	— ⅜	2,100	23	22⅛	+ ⅝
Douglas Aircraft	1,800	68¼	66	+1¼	2,600	68¾	66¾	—1¼
Eastern Air Lines	2,300	38⅞	36¾	+1⅜	8,600	42¾	38¾	+3⅝
Ex-Cell-O	1,200	26	25¼	...	1,900	26⅛	25½	— ¼
Grumman Aircraft Engineering	1,800	15	14⅜	...	2,600	15¼	14¾	...
Hayes Industries	2,900	9	8⅝	— ⅛	2,600	9¼	9	+ ⅛
Lockheed Aircraft	15,100	21⅝	19	+1¼	9,500	21⅞	20⅛	— ¾
National Aviation	1,800	12	11⅛	+ ⅜	4,300	13⅜	12⅛	+1
North American Aviation	7,500	11⅞	11½	— ⅛	9,000	12⅜	11⅝	— ⅛
Pan American Airways	17,200	38⅜	34¾	+2⅜	25,100	41⅝	33⅜	+3⅜
Sperry Corp.	5,100	30¾	29¾	— ¼	7,600	30¾	29⅝	— ⅝
Thompson Products	900	31	30⅜	— ⅜	700	32¼	31½	+1¼
Transcontinental & Western Air	2,600	23	21¼	+1¼	9,400	24⅜	22⅞	+1
United Air Lines	9,400	27¾	26⅛	+ ⅞	28,600	30⅝	27⅝	+3
United Aircraft	17,200	36⅝	34¼	+ ½	14,600	38⅛	36½	+1⅝
United Aircraft pfd	1,000	112	111	+ ½	900	113¼	111⅞	+1
Wright Aero	....	...	...	...	2,000	98	98	+2

New York Curb Exchange

	Week Ending June 26				Week Ending July 3			
	Sales	High	Low	Net Change	Sales	High	Low	Net Change
Aero Supply B	600	4⅞	4¾	+ ⅛	800	5	4¾	...
Air Associates	....	...	...	...	300	7¾	7¾	+ ⅜
Aircraft Accessories	4,000	4	3⅝	— ⅛	2,500	3⅞	3⅝	...
Aro Equipment	1,900	20¾	19¾	+ ⅞	1,200	20¾	20¼	+ ⅛
Beech Aircraft	5,800	14⅝	13	+1	5,200	14⅞	14	— ⅝
Bellanca Aircraft	1,400	3½	3⅜	...	800	3¾	3½	+ ⅛
Breeze Corp.'s	600	11	10¾	— ¼	1,100	11	10⅞	+ ⅛
Brewster Aero	3,500	5⅜	4⅞	+ ¼	1,800	5¾	5¼	+ ⅜
Cessna Aircraft	7,600	10½	9½	+ ½	2,400	10¼	9⅝	...
Colonial Airlines	1,500	8½	7⅞	+ ⅛	3,300	8⅝	7⅞	— ⅛
Fairchild Aviation	600	9	8¾	...	1,400	9¼	8⅞	+ ⅛
Fairchild Eng. & Airplane	1,900	2¼	2	+ ⅛	1,900	2⅜	2⅛	...
Irving Air Chute	400	10	9⅞	— ⅜	200	9⅞	9¾	...
Pennsylvania-Central Air Lines	2,800	15½	15⅜	+ ⅝	18,700	18	15½	+2¾
Republic Aviation	2,900	4¼	4	+ ⅛	4,200	4½	4⅛	+ ⅝
Ryan Aero	1,200	4¼	4	— ⅛	2,300	4¼	4⅛	+ ⅛
Solar Aircraft	1,900	3¾	3⅜	+ ⅝	800	3½	3⅜	— ⅛
United Aircraft pfd	1,500	11½	11⅛	...	1,200	11⅞	11⅜	— ⅛
Waco Aircraft	....	...	...	...	100	4	4	...
Western Air Lines	1,500	9⅜	8⅞	+ ¼	4,000	10	9⅜	+ ¾

Contractors to the United States Army, Navy and Coast Guard, and Aircraft Engine Builders . . .

SPARK PLUGS
THE BG CORPORATION
136 W. 52nd St. New York

New Cement Replaces Riveting, Welding; Said to Speed up Airplane Construction

A new process of putting together aluminum alloy, wooden or rubber aircraft parts without riveting or welding called "Cycleweld," which opens the way for stronger, cheaper, and "easier to build" aircraft, is announced by Chrysler Corp.

The "Cycleweld" process was developed by S. G. Saunders of Chrysler Corporation's production process department, working in cooperation with Lt. Col. Paul H. Kemmer of the Army Air Forces Materiel Center, Lt. Com. A. B. Scoles of the Navy Bureau of Aeronautics, and the Goodyear Tire & Rubber Co. of Akron, O.

Cyclewelding is achieved by putting a specially prepared cement on the surfaces to be connected and then applying heat and pressure to the joint. This cement can be brushed on or made in the form of tape and laid on. The process can be used to unite metal to metal, metal to wood, metal to rubber and metal to plastic in almost any desired combination and with such a good bond that extensive structural applications are possible.

The composition of the cement is a war secret as are specific details of the process.

Tests were recently made comparing Cyclewelded and riveted metal to metal joints. It was claimed that the ultimate sheer strength of the Cyclewelded joint was almost twice that of the riveted joint. Impact strength was many times greater. Creep strength was 50% greater.

Some experiments were made comparing riveted and Cyclewelded wood to metal joints. The Cyclewelded joints were much stronger and lighter.

Stabilizers have recently been fabricated by the Cycleweld method which withstood static, loading and severe vibration tests just as well as, and in many instances better than, spot welded or riveted stabilizers, the company claimed. These Cyclewelded stabilizers were said to be almost twice as rigid as the riveted stabilizers.

On one stabilizer built by Chrysler Corporation, by using the Cycleweld process the number of rivets was reduced from 5500 to about 30.

Cycleweld offers particularly outstanding advantages to wood constructed aircraft, it was said.

On one experimental airplane, by using the Cycleweld process so that nuts and bolts on the most important beam fittings were practically eliminated, more than 1700 lbs. were saved.

The development of the Cycleweld method makes it possible to design and build airplanes on which there will be few rivets or spot or seam welds. Chrysler has offered the use of the Cycleweld method to all manufacturers of war equipment free for the duration of the War.

Aircraft Fasteners Div. Set Up by Rivet Makers

Because of increased volume of requests regarding aircraft fasteners, American Institute of Bolt, Nut and Rivet Manufacturers, Cleveland, O., has decided to set up an Aircraft Fasteners Division.

At a recent meeting, a committee was appointed to establish this division. Its members are: H. O. McCully, (chairman), Russell, Burdsall and Ward Bolt and Nut Co.; J. W. Fribley, Cleveland Cap Screw Co.; A. M. Jones, Buffalo Bolt Co., and C. F. Newpher, National Screw and Manufacturing Co.

Giant Cooling Plant Serves Douglas-Okla.

Capacity to "remove enough heat from the 21 acre interior of the plant to melt almost six and one half acres of ice a foot thick" within 24 hours is claimed for the air conditioning system installed in the Oklahoma plant of Douglas Aircraft Co., Inc., at Tulsa.

This system, designed and installed by the York Ice Machinery Corp., York, Pa., has "a refrigerating capacity of 7,000 tons a day." Constant temperature of 80 degrees and humidity of 50% are maintained.

All Macwhyte aircraft products are made to conform to A-N specifications...including:

"SAFE-LOCK" TERMINALS

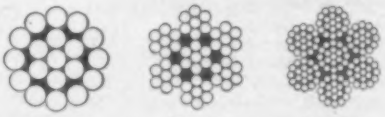
... in eye end, turnbuckle end, stud end, and fork end.

AIRCRAFT SLINGS

...custom-built for your work. Both standard wire rope and braided slings available.

TIE-RODS

...for internal and external bracing. Streamline, square, round.



MACWHYTE COMPANY
2953 Fourteenth Avenue
Kenosha, Wisconsin
Manufacturers of MACWHYTE "Hi Fatigue" Aircraft Cable — "Safe-Lock" Cable Terminals — Aircraft Tie-Rods — Braided Wire Rope Slings — and Wire Rope for all requirements.

WORLD'S PREMIER AIRPLANE FABRIC

LIGHTER STRONGER SMOOTHER

FLIGHTEX

SUNCOOK MILLS - 40 WORTH ST. - NEW YORK, N. Y.

Leading Manufacturers of Fabric and Tapes for the Aircraft Industry.

FLIGHTEX FABRIC

Export Representative—Aviation Equipment & Export, Inc., 25 Beaver St., N. Y.

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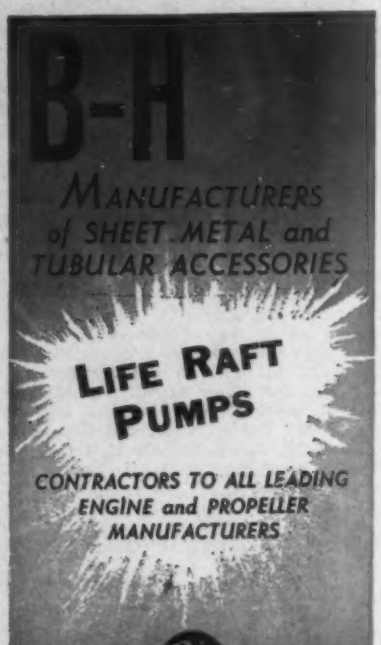
Boyd Joins Higgins

J. Erroll Boyd, formerly a trans-Atlantic pilot for the RAF Ferry Command, is reported to have joined Higgins Aircraft, Inc., New Orleans, La. Boyd, a World War I flier, is recalled as the pilot who flew the mail from Brownsville to Mexico City via Tampico and Vera Cruz in 1927 and 1928. He made the sixth successful crossing of the Atlantic in 1930, in a Bellanca. During 1929 he was operations manager for Coastal Airways in New York.


B-H
MANUFACTURERS of SHEET METAL and TUBULAR ACCESSORIES
LIFE RAFT PUMPS
CONTRACTORS TO ALL LEADING ENGINE and PROPELLER MANUFACTURERS
B-H AIRCRAFT CO.
LONG ISLAND CITY NEW YORK

Douglas Workers to Continue Sans Union

Employes of Douglas Aircraft Company's El Segundo, Cal., plant have turned thumbs down on both the Congress of Industrial Organizations and the International Association of Machinists and, as in the past, will be represented by no union, the company has announced.

A total of 44.7% of the workers voted for neither union; 39.3% for the IAM, former AFL affiliate; and 16% for the CIO. E. J. Eagan, who supervised the election for the National Labor Relation Board, said the percentage of eligible voters who cast ballots was 88.2%.

"Since the percentage of absentees was 5.2%, this meant that only 6% of the voters failed to vote, and all parties to the election, including the NLRB officials presiding, agreed that the result was a true expression of plant preference," said a company statement.

In a second Douglas election at the Vernon plant, the CIO registered 60.9%; IAM 13.9%; and "no union 25.2%, the company reported.

Jacobs Starts House Paper

With volume one, number one, June issue, Jacobs Aircraft Engine Co., Pottstown, Pa., joins the ranks of aviation manufacturers who publish house papers. This one, edited by M. L. Feroe, and as yet unnamed, has an attractive format, featuring employe suggestions and news photos of workers at home, at play and at the bench.

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